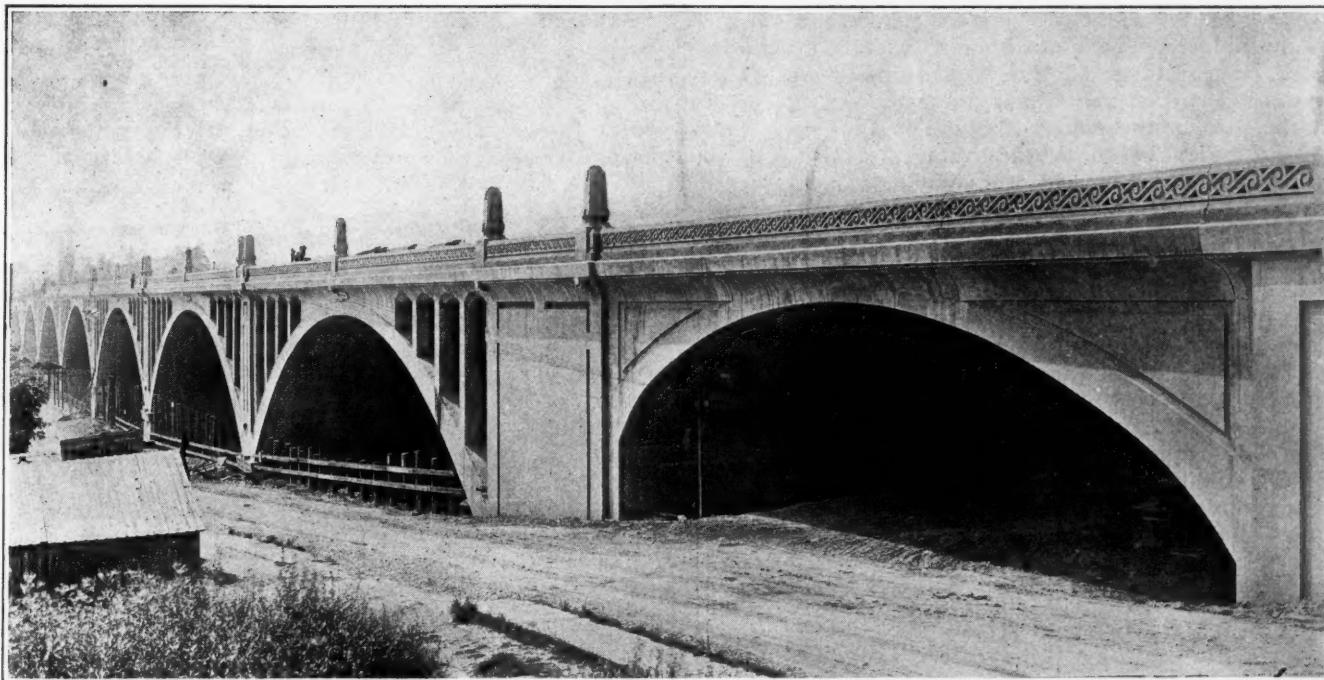


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GRAND AVENUE VIADUCT, MILWAUKEE, COMPLETED.

MILWAUKEE'S CONCRETE VIADUCT

Ten Arches, Totaling More than Two Thousand Feet.—Two Methods of Mixing and Distributing Concrete Employed.—False Work Construction.—Crosses River and Railroad Tracks.

By DUANE MOWRY, Milwaukee, Wis.

The Grand avenue viaduct at Milwaukee, Wis., is a deck structure spanning the Menomonee valley on the line of Grand avenue. It crosses the Menomonee river, which is a small stream, but includes a long flat valley, and the tracks of the Chicago, Milwaukee & St. Paul and the Chicago, Milwaukee & Puget Sound railroads at what is known as Grand avenue junction. Grand avenue, running through the city of Milwaukee from east to west, starting from Lake Michigan, is the main thoroughfare of a high-class residential district which has steadily developed and expanded. The viaduct is designed to be a part of a comprehensive boulevard system which the state of Wisconsin intends to extend to the city of Madison, the capital city, a distance of nearly one hundred miles. It is expected to serve the city of Milwaukee and its environs for many years to come.

Grand avenue continues down into the valley, crosses the river on a low-level truss bridge, and ascends to the high ground beyond. The city limits, however, and the residential districts, practically end at the edge of the depression on the east side of the valley, although there exists a large region of unoccupied territory on the bluff to the west of the valley, in the adjoining town

of Wauwatosa. This territory has high residential possibilities. A few hundred feet north, a steel viaduct, originally intended for a steam dummy line, carries across the valley a line of electric surface cars, which run several miles westward to the suburban cities of Wauwatosa and West Allis. This viaduct, however, is not available for highway traffic. It is to be noted, therefore, that such a viaduct as is to be here described would naturally have a very favorable effect on the development of the city to the westward.

The plan for the Grand avenue viaduct was obtained on the invitation of the county of Milwaukee for competitive designs. The program of the competition, drawn up by Gustav Steinhagen, C. E., and Prof. F. E. Turneaure, contained a ground plan of the site, three profiles along the proposed location, cross-sections fifty feet apart, and several photographs of the crossing. Technical requirements were specified in substance as follows:

A structure of concrete or of reinforced concrete.

A deck structure, with 40-ft. roadway, a 10-ft. sidewalk on each side, giving a clear width of 60 ft. between railings.

A span of 12 ft. clear headroom over 38th street, a clear span over a cross-road in the valley, a span over the full width of the Chicago, Milwaukee & St. Paul railway's right-of-way in the valley 24 ft. in clear height, and a span across the Menomonee river without a pier in the river.

A pavement suitable for heavy traffic, but not asphalt. Sidewalks of granolithic finish with concrete curb and gutter.

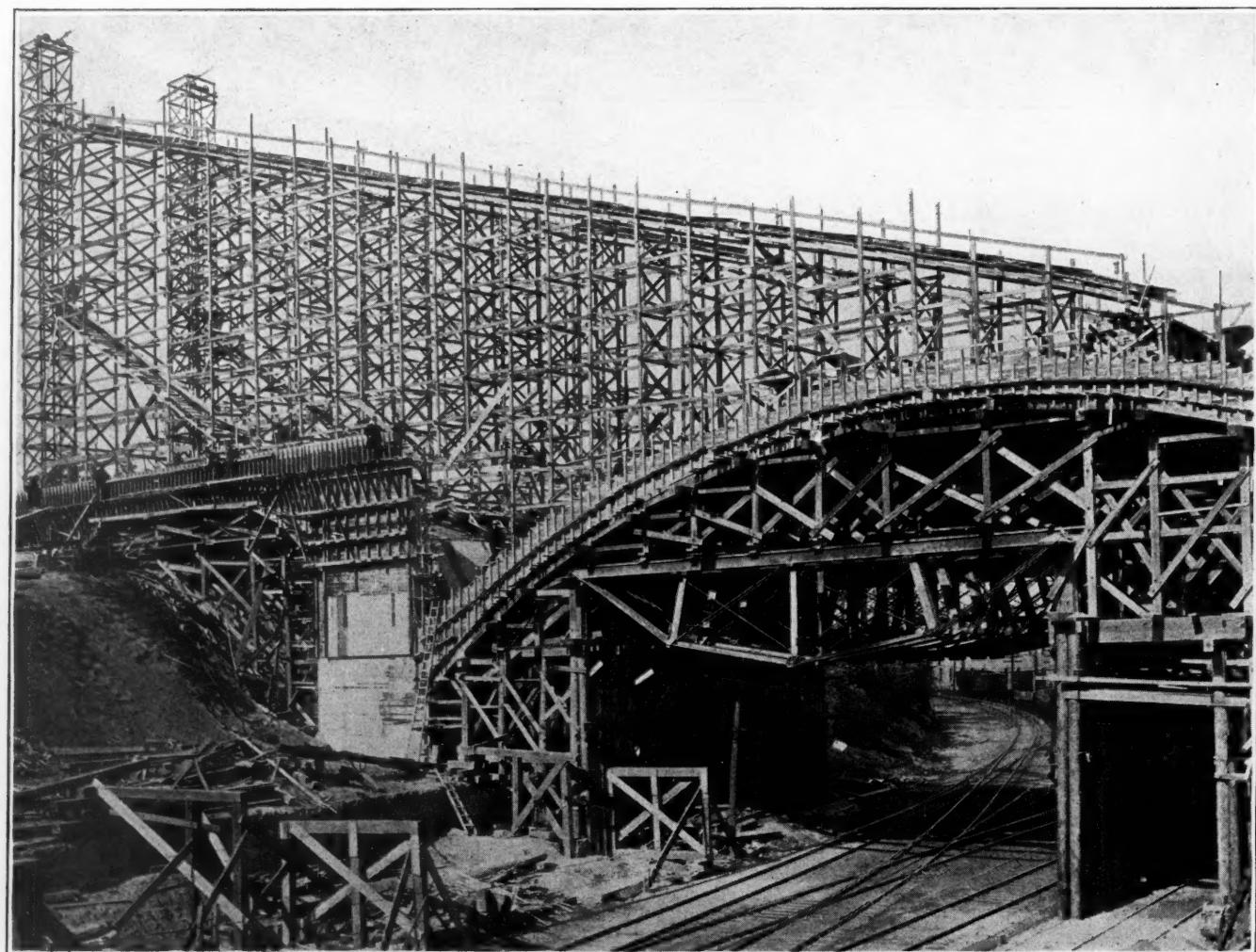
Many designs were submitted. The first prize was awarded the Concrete Steel Engineering Company, of New York, with Palmer & Hornbostel as associated architects. It was regarded more simple and effective by the judges on account of the absence of ornamental work. The viaduct was built after this design. Illustrations show that the only ornamentation is the courses at the tops of the piers with panels above them bearing up under the cornice and lamp posts between the spans. Small panels and other lamp posts are located in the center of each span, combined with a balustrade resting on simple molding of massive sections of scroll design.

Two different contracting concerns worked at the construction of the Grand avenue viaduct at different times. The Newton Engineering Company started work on the structure and abandoned the contract. It was replaced by the National Engineering & Construction Company, which completed the work under the direction of its engineers, Gustav Kahn and J. A. Messiroff. Gustav Steinhagen was consulting and supervising engineer for the city and county of Milwaukee.

Different methods of handling and distributing the

material were employed by the two companies. The Newton Engineering Company constructed a mixing plant close to the railroad side track. A large Smith mixer was mounted at such a height that it could discharge by gravity into small horse-drawn dump cars. Above the mixer was a large bin with a compartment for sand and one for gravel. Another bin was built near the side track. Cars of gravel and sand were unloaded into the latter bin, whence a belt conveyor carried the material into the bin above the mixer. Below this bin and immediately above the mixer were two hoppers of measured capacity, the materials being correctly proportioned by filling these hoppers from the bin above. The cement, which was stored in specially built weatherproof sheds, was wheeled up to these proportioning hoppers and was added to the sand and gravel. The material in the two proportioning hoppers was discharged simultaneously into the mixer below, thus partially mixing the material on its way into the mixer. The concrete was discharged from the mixer into the small dump cars which conveyed it to the point desired. A narrow gauge track was so built as to reach all parts of the work. For foundation work the dump cars could discharge into the excavation directly. But for pier work above ground a large bottom-dump bucket on a flat car replaced the dump car. A derrick at the place where the concrete was needed grabbed the bucket and hoisted it to the top of the pier and the bucket was emptied where required.

The National Engineering & Construction Company abandoned the central plant and installed a number of



TOWERS AND RUNWAY FOR POURING CONCRETE.

mixers of smaller capacity, placing them at the points where the concrete was to be used. Thus the raw material, instead of the mixed concrete, was hauled. Tower hoists were provided for elevating the concrete. The material was proportioned by wheelbarrows. Stone and sand were loaded into wheelbarrows, the cubical contents of which were known, and wheeled to the mixer where they were dumped into an elevating hopper. This hopper was hoisted by power and discharged the material into the mixer. Smith mixers of the revolving batch type were used. After being mixed, the concrete was discharged into a bucket hoist running inside a tower. Motor-driven hoists lifted the bucket to the top, where a tripping device dumped the buckets automatically into a hopper. From this hopper the concrete was run in spouts to the work. Concrete, to be spouted, must be mixed rather wet so that the spouts will not clog, and so that the stone will not separate. The spouting method was used entirely on the arches.

The false work or centering was built on piles. The piles after being driven were cut off at about the level of the springing line. These piles were well braced by timbers bolted securely. Timbers with heavy diagonal bracing in two directions were then built upon the piles to the proper height and shape of the arch. Over the Chicago, Milwaukee & St. Paul R. R. tracks the centering had to be carried on trusses, as no piles could be driven between the railroad tracks.

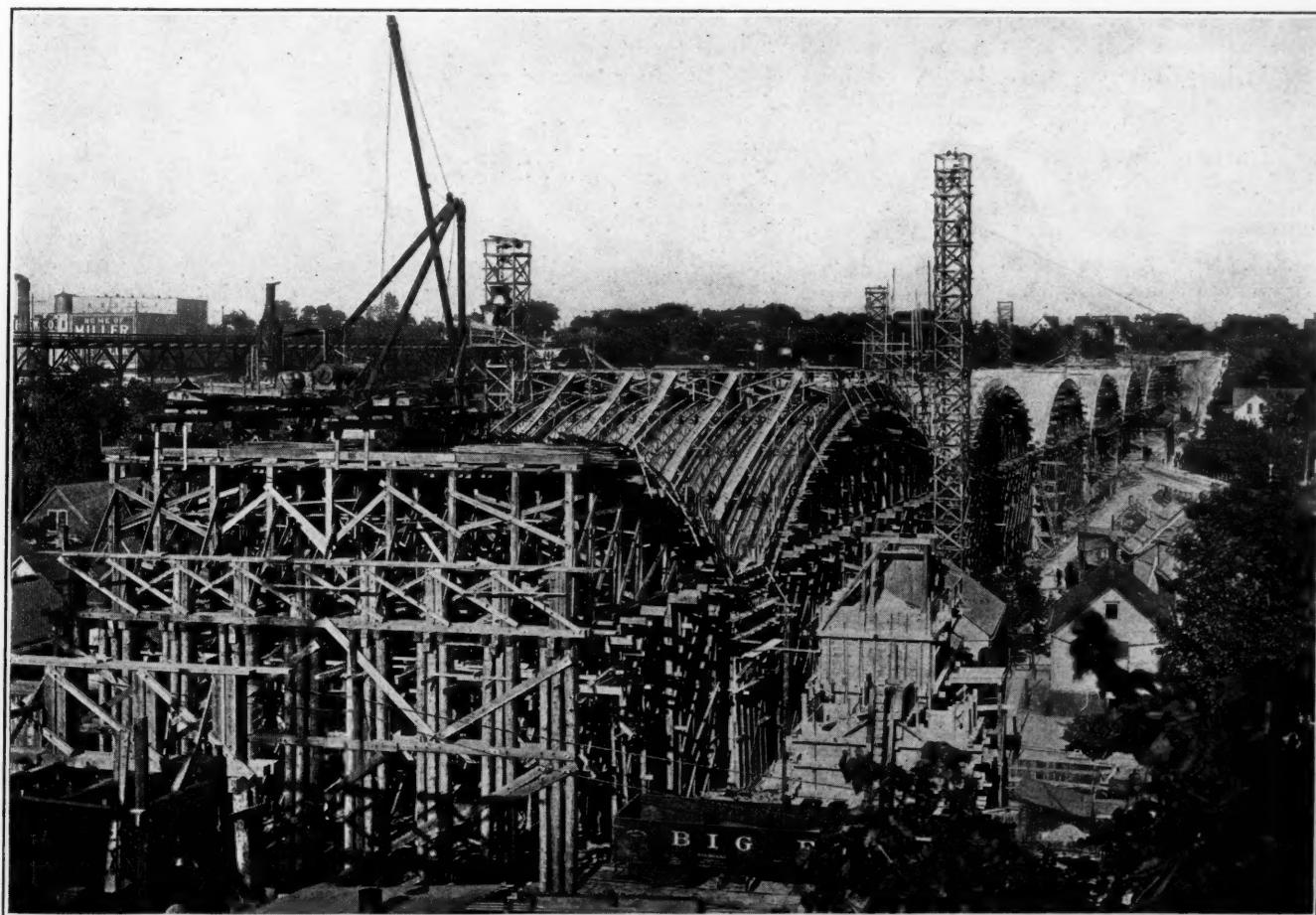
All material was carefully tested. Cement was required to be stored on the grounds at least twenty days before being used in order that it might be properly tried out. An expert tester was employed whose sole business it was to test and analyze all material, including cement, waterproofing materials and the sand and stone. Steel was tested at the mills, and the latticed steel ribs for the arches were all inspected in the shops.

The site of the viaduct is underlaid with limestone, which crops out a short distance to the west. But in no case was it necessary to carry foundations to the rock, as a stiff clay lying above the rock stratum afforded a splendid foundation. Borings were taken before the designs were made in order to find the nature of the underlying soil. During construction period borings were taken at the various pier locations as additional precaution.

Concrete, with lime as the coarse aggregate, was used throughout the structure for piers, foundations, arches, railings, and electric light pedestals. Reinforcing steel was used in the foundations, arches, walls and slabs.

The viaduct consists of eight arches of one hundred and forty feet span each, one of eighty feet span, and one of sixty feet span. At each end is an approach supported by a retaining wall made of concrete. The arches were designed and constructed on the regular Melan system, two feet four inches thick at the crown and six feet thick at the top of the piers. They are reinforced by riveted steel arch trusses. The spandrels are hollow, except for thirty feet on each side of the crown of the arches. The concrete in the arch ring is proportioned for a compression of five hundred pounds per square inch. The length over all, including retaining wall, is 2,088 feet. The highest point above ground is at the Menomonee river, where the bridge deck is 80 feet above the normal stage of the river. Its width over all is 67 feet, with a 40-foot roadway and two 10-foot sidewalks. It is said to be the largest concrete viaduct in the world.

The roadway carries a cushion of earth eighteen inches thick, topped with brick paving. The arches rest on piers fourteen feet thick and the full width of the viaduct, except for two arch openings fifteen feet wide, and thirty feet high to lighten the piers above the con-



TOWERS AND FORMS READY FOR POURING CONCRETE.

tinuous footings. Each pier is proportioned for a maximum weight of ten thousand pounds per square foot below the surface of the ground. The viaduct is designed for dead load plus one thousand pounds per lineal foot, with an evenly distributed live load of one hundred pounds per square foot, and fifty ton electric cars added.

It is impossible to give the cost of the structure. It was intended that it should not cost more than four hundred thousand dollars. But the amount already expended far exceeds that sum, and there is litigation in the courts with reference to unsettled claims for extra work performed and extra materials furnished. It is believed that the total cost will be something in excess of half a million dollars.

The following is the approximate quantity of materials going into the work:

Marquette Portland cement..	55,000 barrels.
Steel reinforcing bars.....	650 tons.
Structural steel	270 tons.
Piling	72,000 feet.
Lumber	3,000,000 feet.
Concrete	45,000 cubic yards.
Crushed stone	36,000 cubic yards.
Sand	20,000 cubic yards.
Excavation	20,000 cubic yards.
Earth fill	20,000 cubic yards.

MUNICIPALITY'S LIABILITY FOR NEGLIGENCE IN OPERATING WATERWORKS.

By J. SIMPSON.

It is a well-established rule that where a municipal corporation is engaged in the construction or operation of a system of waterworks for its private or corporate gain or emolument, it is liable for the negligence of its officers and employees in the same way as a private individual would be. It is immaterial that a benefit will ultimately accrue to the general public, or that the municipality also or principally conducts its business for public purposes, if the injuries were inflicted while it acted in its private capacity. In the case of conflicting evidence on the point, it has been held to be a jury question whether the city was at the time acting in the exercise of a purely governmental function or in a private capacity. *Judson v. Winsted*, 80 Conn. 384, 68 Atl. 999. In this case a horse ran away as the result of being frightened by a stream of water discharged from a hydrant. It appeared that the work of flushing the hydrant was done, not merely for the purpose of ascertaining, whether it was in suitable repair for fire purposes, but as an aid in the sale of water. It was held that the city was liable. For the same reasons a city was held liable for damages caused by the negligence of its servants in repairing a water pipe, where the water system was used not only for fire protection, but also to sell water to the inhabitants and to street sprinkling contractors. The injury did not arise from negligence in the use of the hydrant for the purpose of extinguishing fire. Its business of selling water was not an exercise of the police power, and the city was not exempt from liability for negligence in maintaining its system. *Chicago v. Selz, Schwab & Co.*, 202 Ill. 545, aff'g 104 Ill. App. 376. So, where a village maintained a water system for the double purpose of supplying the inhabitants with water for private purposes and providing against fire, it was held that as to that portion of the system supplying individuals for hire, the village was liable for any negligence in its construction or maintenance. *Wilkins v. Village of Rutland*, 61 Vt. 336. Here the village was held liable for a death caused by a water box which projected above the surface of the highway. The operation by a municipal corporation of an acequia to furnish water to the public for irrigation is not a governmental

act, which a municipality may perform without liability to individuals. In another case, *Town of Norman v. Ince*, 8 Okla. 412, a municipality was held liable for injuries to adjacent property caused by its negligent construction, in the exercise of its governmental powers, of a water tower on its land which, because of its faulty construction, continually discharged water on the plaintiff's premises.

Municipalities, however, are not insurers of their citizens against damages from their construction works. Their obligation and duty are measured by the exercise of reasonable care and vigilance, and liability can only be predicated upon their neglect or misconduct, *Jenney v. City of Brooklyn* 120 N. Y. 164.

In New York the decisions present some variance as to a municipality's liability while supplying its inhabitants with water. In an early case, *Bailey v. New York*, 3 Hill 531 affirmed 2 Denio 433, the city was held liable for the breaking of the dam across the Croton river constructed as part of the city's water system; and in *McAvoy v. New York*, 54 How. Pr. 245, the city was held liable for the bursting of a Croton water main. In a later case, *Fire Insurance Co. v. Village of Keeseeville*, 148 N. Y. 46, it was said that the maintenance by the municipality of a waterworks system under statutory authority was "in no sense a private business, and the authority to construct the works was given to it by the legislature, not at its own particular instance or application, but because it was one of the political subdivisions of the state, and, as such, was entitled to exercise it. How could it justly be said that the maintenance of the waterworks system, any more than of a fire department, was a matter of private corporate interest? Is it not for all the inhabitants and for their good and protection? No interest was designed to be subserved, other than that of adding to the powers of a community carrying on a local government. If that is true, the alternative is that, being for public purposes and for the general welfare and protection, the defendant assumed a governmental function and comes under the sanction of the rule which exempts government from suits by citizens." That case was cited by a very recent case, *Oakes Mfg. Co. v. New York*, 125 N. Y. Supp. 1030, to the proposition that it is the settled law of the state of New York that in maintaining a water supply system for general public use the municipality is acting as a governmental agency in the work of the state itself, and not as proprietor engaged in a service for its own purposes and profit. The rule was adopted after careful consideration and a thorough review of the previous case law on the subject, not only of the state of New York, but of the country at large and of England as well. As a necessary corollary from that holding, it was further held, in the *Fire Insurance Co.* case, that a municipal corporation was not liable for negligence for nonuser, or misuser, in the maintenance of its water supply system, so far as the furnishing of water itself was concerned. In that case the negligence alleged was the failure to keep the water system in condition to furnish protection from fire. In the *Oakes Mfg. Co.* case the water furnished to the plaintiff was alleged to be so impure as to be unfitted for use in its business of making dyestuffs.

Different conclusions, however, have been reached in other New York cases. In *Dunstan v. New York*, 91 App. Div. 355, the city was held liable for the flooding of adjacent premises caused by the breaking of a lateral pipe connecting a fire hydrant with the mains used for supplying the city and inhabitants with water. It was said that if the city had maintained a separate system for the fire department, and the break occurred in such a pipe, it might have been that it could not be chargeable with negligence concerning the construction or main-

tenance thereof; but that not being the case, the question was not decided. But for negligence in not repairing a water main proper, or a service pipe used for other than fire purposes, the city would be liable for any damages directly and approximately attributable to such negligence. And in *Town of Southeast v. New York*, 96 App. Div. 598, an action for damages to the bridges and highways of the town caused by the collapse of a portion of a reservoir dam, part of the water supply system of the City of New York, the court went back to the doctrine of the case of *Bailey v. New York* and held the city liable. See also *Morton v. New York*, 140 N. Y. 207. And in the recent case of *Ettlinger v. New York*, 38 Misc. 229, 109 N. Y. Supp. 44, an action against the city for the overflow of water shown to have been caused by defects in the water mains, it was held that the city was under the obligation and duty to exercise reasonable care and vigilance in the maintenance of its mains.

It is also the settled rule that where a municipality's system of waterworks is constructed and operated for the benefit of the general public, and for no purpose of money making, the municipality, exercising a purely governmental function, is not liable for the negligence of its officers or agents while employed in the construction or operation of the system. This is the case where the negligent acts are performed in connection with the municipality's duties in regard to the prevention of fire. In *Aschoff v. City of Evansville*, 34 Ind. App. 25, it was held that a city is not liable for flooding an adjacent cellar by the bursting of a water pipe under the extra pressure during the extinguishment of a fire; in the extinguishing of fires and in making arrangement therefor, the city is acting in a governmental capacity. But the city was held liable for damages by such flooding caused by failure to keep in repair the water pipes in the street used by the fire department; as then it acted in its corporate, and not in its governmental capacity. And in *Winona v. Botzet*, 169 Fed. 321, a city maintained a whistle connected with its fire alarm system, to give notice automatically by its blast, of fires and their location when an alarm was turned in. The city ordered the waterworks engineer to have this whistle blown daily at 5 p. m. as a warning to its employes at the end of their day's work. A blast of the whistle at this hour startled a team of horses, resulting in the death of one person and the injury of another. The city was held liable, the whistle not being blown in the exercise of the city's power to protect itself and its inhabitants against fires, but in the exercise of its power to maintain waterworks and to care for its own property.

The rule has been applied to cases of injury by fire through defective water supply, *U. S. v. Sault Ste. Marie*, 137 Fed. 258, *Butterworth v. Henrietta*, 25 Texas Civ. App. 467; by water thrown while extinguishing fire, *Davis v. Lebanon*, 108 Ky. 688, 57 S. W. 471; by a de-

fective valve to a cistern kept for fire purposes, *Terrell v. Louisville Water Co.*, 127 Ky. 77; by the flushing of a hydrant by firemen for the purpose of removing obstructions which would interfere with its use in case of fire, *Brink v. Grand Rapids*, 144 Mich. 472; injury by fire caused by clogged hydrants and pipes, *Miller v. Minneapolis*, 75 Minn. 131, and by defective fire plug, *Wright v. Augusta*, 78 Ga. 241; damage by water from defective fire hydrant, *Rice v. St. Louis*, 165 Mo. 636; personal injuries through the frightening of a horse by a stream of water from a hydrant, the capacity of which was being tested for fire purposes; *Edgerley v. Concord*, 62 N. H. 8; from the forming of ice around fire hydrants which had been thawed out for fire purposes, *Welsh v. Rutland*, 56 Vt. 228. In these cases the municipality was held not liable.

SOME UNUSUAL PLUMBING DEFECTS.

In the plumbing inspector's office at Waterbury, Connecticut, there is a unique collection of defective pipe that has been discovered while carrying on the inspection of the drainage system of buildings in the city. The accompanying cuts of the defective piping show the actual condition of the pipes when they were found. The discoveries were brought about by applying the smoke test to the drainage systems of the buildings in which defects were suspected.

Figure 1 shows a 1½-inch bath waste that has been destroyed by rats, the entire bottom of the pipe being eaten away. All of the waste pipe that lay between the floor joints and that portion of the vent pipe under the floor was destroyed. The rats evidently were seeking water, which was obtained from the bath trap.

Figure 2 on the left-hand side shows a 1½-inch wiped joint eaten through by rats, the object in view evidently being the same as in Figure 1, as the hole was through the wiped joint that joined the bath trap to the waste pipe.

Figure 2 on the right-hand side shows a 1½-inch lead pipe that failed. The pipe was taken from under a bar in one of the saloons. The sink to which this pipe was attached was used for washing whiskey glasses and had been used about four years.

Figure 3 shows a home-made vent pipe. In this case the owner was troubled with syphonage, the water seal being lost when the adjoining fixture was discharged. In order to overcome the trouble a 1½x1-inch gas tee was cut in half and the branch wired to the trap. The 1-inch branch was then run to the outer air through the side of the house. This, of course, prevented the trap from syphoning, but did not prevent the waste water from running through the pipe into the yard. A plumber was finally obtained and the work was properly done.

Figure 4 shows a piece of standard soil pipe that has been in constant service for fifty years. This piece of pipe formed the bottom of an offset, and was sub-

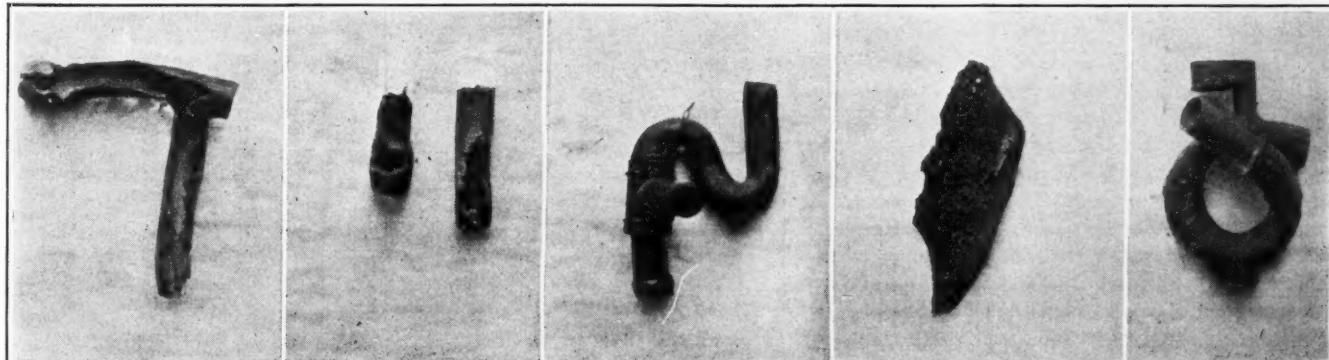


Fig. 1.

Fig. 2.

Fig. 3.

Fig. 4.

Fig. 5.

CURIOSITIES IN PLUMBING COLLECTED BY THE PLUMBING INSPECTOR OF WATERBURY.

jected to unusually hard wear as all the waste water that was discharged from above fell directly on the offset.

Figure 5 shows a hand-made trap which is vented with a P. F. Morey vent. The patent to this vent was issued 1777, and was probably one of the first patented vents on the market for preventing fixture traps from syphoning.

For the above information and photographs we are indebted to J. R. Walker, plumbing inspector of Waterbury.

CHICAGO'S MOUNTED POLICE.

The mounted traffic squad of the Chicago police force is now recognized as performing one of the most valuable services rendered by the department, and its work is appreciated by all concerned. Teamsters realize that their work is made much easier by the enforcement of the traffic regulations which the traffic squad has brought about. Business houses have come to look upon the mounted policemen as their allies, and refuse to employ a teamster who cannot get along with them, because they decrease the cost of teaming by largely eliminating delays, so that teams are now able to haul from one-fifth to one-half more loads a day over the city streets. This means a considerable saving in money to firms having much hauling to do.

It is said that accidents to human life on the streets in the "loop" district have decreased 60 per cent. since the regulation of street traffic.

There are 112 men in the mounted squad, who go on duty after roll-call at 7 o'clock in the morning, and are relieved by the second detail five hours later. After the roll-call the lieutenant or captain instructs the men as to the orders from headquarters, and assigns them to their posts. Once a month the men are changed from morning duty to afternoon duty. The horses are all of one color—bay—and their manes are kept of uniform length. The price ordinarily paid is \$250 for each horse. In the winter time, when the streets are covered with ice, emergency horse overshoes are used. Before their use was inaugurated, six or eight men were laid up during the winter season with broken legs from the falling of their mounts on the slippery streets.

A school for mounted police is maintained, from which to draw additions or substitutes to the regular mounted force. Ten new men are usually kept under instruction, horses and men being educated together for months before they are placed in actual service. Among other things they are taught to mount and dismount speedily. In the summer time they receive instructions in revolver shooting, and in winter they practice foot drills at the armory.

TYPHOID IN LETTUCE.

A new agent in communicating typhoid fever was announced in a paper at the recent Hygienic Congress, by Dr. Hiram Byrd, of the Florida State Board of Health. By the familiar method of elimination, he apparently traced a typhoid epidemic which occurred in Tampa, Fla., last winter, after the usual fly typhoid season was over, to lettuce which was grown on low land near the city. This low land had been flooded at the beginning of the lettuce season by a creek, on whose water shed there had been 16 cases of typhoid a few weeks before.

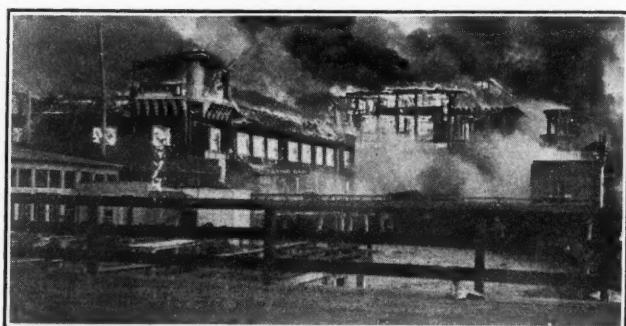
The correctness of the conclusion as to the cause in this case appears to be well established, and serves to attract attention to the fact that not only shell fish which is eaten raw, but vegetables and possibly other food matters which are eaten uncooked, should be carefully looked after by Boards of Health.

MOTOR APPARATUS AT OCEAN PARK FIRE.

The \$3,000,000 fire in Ocean Park, California, which destroyed the great pleasure pier and the business district of the seaside city, was held in check by the motor fire equipment which came from Los Angeles, about 18 miles from the conflagration. Without the speedy assistance of the motor fire engines, the loss would have been far greater no doubt, as the strand is built up for miles in both directions with closely set frame structures.

Fire Chief Eley reached the beach in his automobile within eighteen minutes after receiving the alarm, and the motor-driven engine and hose cart that were dispatched from the city required less than half an hour to make the run.

In appreciation of this the Board of Trustees of the city of Venice adopted resolutions thanking the Los Angeles department, and the Venice City Club sent Chief Eley a letter expressing the thanks of the club for the

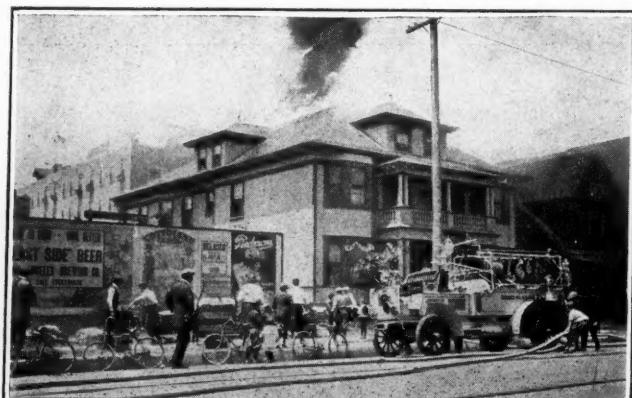


BURNING OF FRAZER PIER AND SIX BUSINESS BLOCKS, OCEAN PARK, CAL.

excellent work of the department at the Ocean Park fire. Chief Eley was asked to suggest any betterments in the Venice fire fighting service. The Charles Shaw company sent a check for \$50. The money was credited to the firemen's relief fund.

To show the difference in efficiency between the old and the new, it may be stated that the horse-drawn fire engines that were loaded on flat cars and dispatched by the electric line to Ocean Park were too late to be of any service, as it took them more than two hours to reach the scene of the trouble.

While this Ocean Park fire was outside the limits of the city, and therefore not within the jurisdiction of the Los Angeles Fire Department, yet the annexed towns of Wilmington and San Pedro are equally distant, and, being incorporated with Los Angeles, could claim the service of the department in case of fire. For such emergencies, the motor-drawn fire engines are invaluable, and in the case of a single fire could easily repay their cost.



APPARATUS THAT HELPED AT OCEAN PARK FIRE.

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OCTOBER 31, 1912.

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City Planning.

In our remarks made last week concerning the location of mail boxes, we referred to the study of this subject as one which might appropriately be considered as a part of city planning. In the same issue was a note concerning the purpose of the National Conference on City Planning to endeavor to obtain a number of solutions to a given problem in city planning, in which the idea apparently was to include in this term the designing of the ground plans of city streets, parks, and other main subdivisions of the area. This idea of city planning is broader than that commonly entertained a few years ago, when the term was popularly applied only to the work of architects in designing civic centres and other impressive and monumental features of the city plan.

But we believe the time is close at hand when a still more comprehensive view will be taken of what should be included in the complete and well thought out city plan. Such a plan should not only give the location, width and grade of streets, but also provide for definite locations beneath their surfaces for sewers, water and

gas pipes, wire conduits, etc.; and also consider the kind of pavement best adapted to the special conditions of the street in question, the kind of sidewalk, width of paved portion, location of shade trees, fire hydrants, light standards, letter boxes, street signs, street water inlets, curb cock boxes, water meter boxes, outlets of rain water leaders, and a score or more of the less common appurtenances to be found on or in connection with the streets of most of our modern cities. In too many cases most of the features named above, and others, are added to the streets as after-thoughts, and are consequently neither as effective as would be possible nor so designed as to best offer the minimum of inconvenience and of interference with the other functions of the street.

What we have in mind is that this work be undertaken by an engineer of many years' experience in constructing and maintaining the various structures to be found on, under and over a modern city street, and one who is by nature capable of escaping the influence of established precedent; this engineer to list the various functions, both great and small, which the street and its various appurtenances are expected to perform, and then prepare *de novo* a design which will provide for all of these in the way which will give each the maximum effectiveness consistent with the requirements of each of the others, the whole being considered as one complex but co-ordinated unit. In making such a plan, moreover, the designer must consider not only the engineering features—that is, those of construction—but also the various uses to which the street is to be put. Thus, traffic must be considered, including the dangers, delays and difficulties connected with the present intermingling of foot, rapid and slow vehicle traffic. The relation of street width to amount of traffic, and of the latter to the sizes and uses of the buildings along the streets, will be an important consideration.

There are occasionally to be found city officials who take these broad and comprehensive views of the problem of city planning, but in few cities is there any provision for the consideration of street problems other than as so many distinct, clashing functions; whereas what we have in mind is a department or individual which should have power to design and control the work of all municipal departments or corporations which use the street for any purpose whatsoever, and in doing so should take the comprehensive view of the matter which we have suggested.

We believe that such an official is necessary to the economical and orderly maintenance of city streets in all their details, and that the time is soon coming when all of the larger cities will place in the hands of some such official the entire charge of all structures entering into and uses made of the public streets.

Convention of the American Society of Municipal Improvements.

The preliminary program of this society appeared in our issue of last week, and there is every indication that the convention this year will be more than usually interesting and enthusiastic. There are very few, if any, societies whose conventions are attended by a larger percentage of the membership, or where better or more useful work is performed, and we know of no gathering of municipal officials from which more valuable information or greater enthusiasm for better work can be carried away. It is fortunate, and an encouraging sign of the appreciation of this, that several score of cities are so far convinced of the truth of this, that they send their city engineers, street superintendents, and others who have

charge of municipal improvements, to attend these conventions; and we believe that the money which they spend in this way is returned many fold by the improved service which these officials can render in their various municipal functions.

One of the important matters to be considered this year by the society is the subject of combination in some form with the Association for Standardizing Paving Specifications. There seems to be a more or less general impression among the membership of the latter society that it has largely accomplished the work for which it was organized, and at the convention in January of this year the president was instructed to appoint a committee to report at the next convention upon "the advisability of the further continuance of this organization, or upon amalgamation with the American Society of Municipal Improvements, providing a suitable basis for such consolidation can be arranged." The member who offered this resolution, N. P. Lewis, stated that he specified this society "because I do not believe there is any other organization through which the work of this association can be effectively carried on." The majority of the committee appointed, and, indeed, a considerable percentage of the membership of this organization, are already members of the American Society of Municipal Improvements. It is probable that the latter society will make a more or less formal proposition to the A. S. P. S., looking to a combination of the membership of the two societies, which will meet with the approval of the committee referred to, and a complete amalgamation of the two may be expected following the convention of the A. S. P. S. in Pittsburgh next year.

Such uniting of membership and combining of energies appear to us desirable, as it would seem as though the work which remains for the A. S. P. S. to do could be carried on fully as well by the older society, and a considerable number of those who are members of both societies have found it inconvenient to spare the time for two conventions, and to persuade their respective cities that the expense of both was necessary or desirable.

SAND-CLAY ROADS.

Sand-clay roads were described at length in Municipal Journal for June 15, 1910. They are not well adapted to the heavy traffic of city streets but are better than the natural soil even there, and are very popular for roads throughout a considerable area of the United States. In a paper before the American Road Congress, W. S. Keller, State Highway Engineer of Alabama, gave some of the conclusions from his experience with these roads.

Concerning the construction, he said:

"It must be borne in mind that a sand-clay road, unlike other roads, cannot be finished in a short space of time. It can, of course, be left in an apparently finished condition with a hard, smooth surface, but it will be found on close examination that the hard surface is in reality only a crust, underneath which there are several inches of loose material. After the first hard rain the crust softens, the road gets bad and the work appears to be a failure. This, however, is just what is needed to make it eventually good. After the surface has dried until the mass is in a plastic state, it should be dragged until the surface is once more smooth with proper crown and should be kept this way by dragging at least once a day until the sun has baked it hard and firm. The mistake of keeping the traffic off during the process of resetting should not be made. The continuous tamping of wheels of wagons and hoofs of horses is just what is needed to compact the sand-clay into a homogeneous mass. The ordinary roller is not very effective in this work, however; it would appear that a tamping roller,

such as has been used in the construction of oil roads in California, would be very effective. A split log drag is an indispensable machine in the construction of any kind of sand-clay road.

"A natural mixture of sand and clay can nearly always be found where, as stated before, the two properties are found separate. The most important point is to know the natural mixture when seen. The very best guide to this is to be had from the observation of roads in the immediate vicinity and to find a natural piece of good road. This accomplished, a sample taken from the best of this good section will, by comparison, enable you to find what is required, close to the road to be surfaced."

Mr. Keller believed that a sand-clay road is not only a cheaply constructed one, but also that "A sand-clay road is the cheapest road to maintain, for the reason that it can be repaired with its own material. By this I mean that with a split log drag or grading machine ruts can be filled with material scraped from the edges, whereas on gravel or macadam roads, such is not possible. The repairing of these roads can be done almost exclusively with the split log drag, only enough hand work being required to keep the gutters open and growth of weeds out of the shoulders."

WATER RATES FOR NEW BRITAIN.

The subject of meter rates for water furnished by the municipal waterworks of New Britain, Conn., is now under discussion in that city and P. J. Egan, clerk of the commission, informs us that the matter at present stands as follows:

The question of aiming at a basis of charge for water by meter is in the hands of a Committee of the Common Council for adjustment. The Water Commissioners submitted the following schedule to the Council:

"A minimum charge, for metered service, of \$6.00, in two payments, in January and July, based on a consumption not exceeding 5,000 cu. ft. per annum.

12 cents per 100 cu. ft. for quantities from 5,000 cu. ft. to 100,000 cu. ft.

10 cents per 100 cu. ft. for quantities from 100,100 cu. ft. to 300,000 cu. ft.

8 cents per 100 cu. ft. for quantities from 300,100 cu. ft. to 600,000 cu. ft.

6 cents per 100 cu. ft. for quantities from 600,100 cu. ft. to 1,000,000 cu. ft.

5 cents per 100 cu. ft. for quantities over 1,000,100 cu. ft."

Some of the Committee are in favor of a flat rate, 7 cents per 100 cu. ft., while a majority of the Committee favor the following schedule:

"A minimum charge of \$6.00 per year shall be made to all consumers of water who use 5,000 cu. ft. or less. All water in excess of 5,000 cu. ft. per year shall be paid for on the following basis:

For over 5,000 cu. ft. to and including 100,000 cu. ft. 10c. per 100 cu. ft.

For the water used in excess of 100,000 cu. ft. to and including 500,000 cu. ft. 8c. per 100 cu. ft.

For the water used in excess of 500,000 cu. ft. to and including 1,000,000 cu. ft. 6½c. per 100 cu. ft.

For the water used in excess of 1,000,000 cu. ft. 5c. per 100 cu. ft."

A fourth proposition presented to the Council submits the following:

"To lay an annual tax of six cents per running foot upon all of the property abutting the water mains in the distribution system. This would stand as a fixed charge, whether water be used or not, and to lay a tax upon the water used, as per the meter readings, of 4 cents per 100 cu. ft., and to make an annual charge of 50 cents per meter for reading meters."

NEWS OF THE MUNICIPALITIES

Current Subjects of General Interest Under Consideration by City Councils and Department Heads—Streets, Water Works, Lighting and Sanitary Matters—Fire and Police Items—Government and Finance.

ROADS AND PAVEMENTS

Build New Road.

Omak, Wash.—The state road between Omak and River-side is over half completed and the contractors, the Omak Mercantile Company, are confident that the work will be completed before the expiration of the contract, which is November 15.

Bituminous Macadam on Concrete Was Defective.

Ventnor, N. J.—A comparatively new form of pavement was laid last summer on Ventnor avenue. A concrete foundation was first laid. On this was constructed a bituminous macadam surface, three inches thick, by the penetration method, in accordance with the usual specifications regarding sizes of stone, rolling and other details. Two gallons of bitumen to the square yard were required and a high-grade natural asphalt used. Soon after the street

for the completion of the Rincon Sea Level road. The Rincon road was projected by the motorists and citizens of Ventura and Santa Barbara county, and is designed to obviate the necessity of traveling over Casitas pass, which at all times is a source of danger to an inexperienced driver and is often closed during the winter months. About \$35,000 were raised by private subscription for the construction of this roadway and this amount has already been expended upon it. When the fund was exhausted, however, the work came to a stop and the highway commission was urged to take over the roadway and rush it to completion. A causeway of more than 6,000 feet is being constructed on pilings around the base of the high cliffs and it is this portion of the route that the highway commission will first complete. About 2,000 feet of the causeway has already been built and it is expected that the remaining 4,000 feet will be open and ready for traffic within sixty days.

Work on Harriman's Paving.

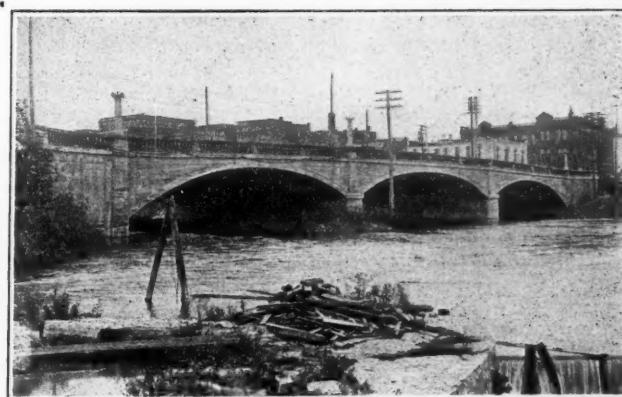
Harriman, Tenn.—Engineer H. B. Harril, representing the West Construction Company, of Chattanooga, which has the contract for the construction of eleven blocks of asphalt paving is in Harriman for the purpose of grading the various streets and making them ready for the paving. The work will be completed before the time limit expires January 1.

Pavement Dance at Waco.

Waco, Tex.—The unique spectacle of a pavement dance, probably the first in Waco, was witnessed recently in Waco. It was arranged to mark the completion of the paving of a block in the business district, and the affair was planned by the contractors and the proprietor of a local hotel. Many spectators witnessed the grand march and the dances which followed.

New Cement Bridge in Sioux Falls.

Sioux Falls, S. D.—A view of the new concrete bridge just completed in Sioux Falls is shown. The bridge consists of three seventy-two-foot spans the full width of the street, or sixty-six feet. The poles and wiring which are so conspicuous in the picture are all to be removed when the bridge is fully completed. Conduits have been laid on the bridge to carry all the wires, also water and gas. The contract cost of this structure was \$45,000, which does not include the filling on the east side of the bridge.



Courtesy Argus Leader, Sioux Falls, S. D.

NEW CONCRETE BRIDGE AT SIOUX FALLS.

It does, however, include the paving or macadamizing of the bridge, which has not yet been done, and will not be until the bridge has been used for a little time. The bridge was built by the Stark Construction Company, of Des Moines, Iowa, and the workmanship and low cost are both a source of satisfaction to the citizens of Sioux Falls.

DEFECTIVE PAVEMENT ON VENTNOR AVENUE.

was opened to traffic serious defects appeared in the part of the street laid first. The illustration shows the bituminous macadam surface removed, preparatory for repaving. About 5,000 square yards were relaid. Close inspection showed that the asphalt had not penetrated to the concrete surface in sufficient quantity to bring about a strong adhesion.

Consider Convict Labor for Road Construction.

Madison, Wis.—The state board of control and the Wisconsin highway commission are considering the policy of prison labor on roads and amendments to the highway law by the next legislature were also considered. It was decided to hold a second good roads school next February.

Commence Highway Construction.

Los Angeles, Cal.—The state highway commission, which has in charge the building of California roads under the \$18,000,000 highway bond issue, has now taken up the actual construction of highways and it is stated that every effort will be made to rush the work. The entire time of the commission since its appointment has been taken up in making preliminary surveys and in deciding upon the most suitable routes. Many months were required in perfecting the organization of the commission and a still longer time was utilized in securing reports from the field parties and since then the requirements of each part of the state have been carefully considered. Nearly two years' time has been consumed but now the main routes have been definitely decided and the beginning of actual construction has been made and there will undoubtedly be many miles of new state highways opened to traffic within the next year.

Of great interest to Southern California motorists is the action of the commission in ordering contracts signed

Road Improvement Planned.

Boonsboro, Va.—A move looking to the improvement of the road from the Campbell county line to Boonsboro postoffice, Bedford county, is being planned by residents of the latter village. The improvement will consist of putting a top dressing of limestone on the road, and the residents of Boonsboro have agreed to haul the material, and it is understood that the county of Bedford will furnish the limestone. It is believed that the Lynchburg Automobile Association will lend aid to this popular step, although no proposition has been made to the organization by those who are directly interested in the plan.

Sample Pavement is Laid.

Boulder, Colo.—The sample Olmsted pavement in an alley between the Temple building and the city hall has been completed by the application of a coat of tar and sand. After the tar has dried well, the surplus sand will be swept away and a durable pavement will have been secured. Although all the bills have not yet been obtained, it is estimated by Street Supervisor Jacobsen that the cost will not exceed 75 cents per square yard. It is probable that it will be considerably lower. The cost is so low and the character of the pavement so obviously good that the building of this sample is likely to accelerate the movement for good streets and roads in this section.

Work Progresses on Trans-State Highway.

Jackson, Tenn.—Good Roads Engineer Buck has announced that Madison county's portion of the Memphis-to-Bristol highway has been completed. Stretching thirty-three miles through the heart of the county, linking together the counties of Henderson and Haywood, the completed span of roadway is one of the finest in the country. Thirteen miles of the stretch is macadamized and surfaced with asphalt and the remainder is constructed of sand and clay. When the movement for the state highway was inaugurated, Madison county was one of the leaders in promoting the undertaking. This county was one of the first to promise a complete roadway from border to border and now has been the first to fulfill the promise which many other counties following Madison's example afterward made. In the construction of the highway under the supervision of E. G. Buck the residents at each end of the road co-operated with the engineer. In announcing the completion of the road, Engineer Buck paid a warm compliment to the people who assisted him.

Mark Fifty Miles of Lake to River Road.

Milwaukee, Wis.—That the lake to river road will be the most thoroughly marked, with a red "X" on a field of white on the telephone poles along the line, of all the cross state roads in the United States, is the declaration of Malcolm MacKinnon, chairman of the sign posting committee of the Wisconsin State Automobile Association and secretary of the Lake to River Road Association. The marking has been completed between Hartland and Watertown and in a few days will reach Waterloo. About fifty miles has been marked on the line between Madison and Prairie du Chien and Dubuque. Secretary MacKinnon will leave for a trip over the line between Madison and La Crosse, the marking of which will be commenced at once. This route goes by Sauk City, Prairie du Sac, Baraboo, Abelman, Reedsburg, La Velle, Wonewoc, Union Center, Elroy, Kendall, Ontario, Cashton, Portland, Newburg's Corners, St. Joseph to La Crosse.

Urges Larger Fund for Street Paving.

St. Paul, Minn.—St. Paul has 600 miles of mud streets, according to City Engineer Claussen, and on account of the annual limit of \$200,000 in the street and sewer fund nothing can be done to improve them. An amendment will be laid before the voters at the election next month by which this limitation on the fund can be removed. Mr. Claussen urges that all the principal streets of the city be paved and others macadamized. He will make a report soon embodying his ideas gathered largely during his recent trip to eastern and central cities with Mayor Keller and W. T.

Lemon, member of the Board of Public Works. The mileage of mud streets in St. Paul is nearly twice as great as the total mileage of streets in other cities of the same size throughout the country. There is a total of 803 miles of streets in the city. The large mileage is attributed by Mr. Claussen to the activity of real estate men resulting in numerous additions to the city which now give it an area of 55.4 square miles. While census figures show that 17.2 per cent. of the total cost of city government in St. Paul is for the care and improvement of streets, as against an average of 12.1 per cent. in all other leading cities of the United States, Mr. Claussen contends that this is misleading because of the extraordinary mileage in St. Paul.

Encourage Proposed System of National Highways.

New York, N. Y.—Pronounced impetus has been given to the proposal for the construction of a system of national highways by the enthusiasm with which good roads advocates throughout the country have welcomed the action of the American road congress in promoting the federal aid proposition generally, as well as the recent project for the construction of a great ocean-to-ocean highway, in part following the old trails of the early pioneers, and to be built with funds, much of which will be provided by the automobile and allied industries, general leading concerns having already agreed to contribute one-third of one per cent. of their gross earnings for the next three years toward this great national road. That the national government should continue the policy of federal aid in highways construction adopted by the present congress, without waiting for object lessons in the shape of privately constructed transcontinental roads, was the opinion of the congress, expressed in its first and most important resolution. In this it endorsed the attitude of the A. A. A., which has consistently been that before any particular route for a national road or system of roads can be intelligently selected, there must be adopted a definite policy of appropriations and expenditures and the proper administrative machinery providing for the economical distribution of available funds. The action of the congress of the United States in appropriating \$500,000 for experimental road construction and appointing a joint committee to report upon a comprehensive plan for further federal aid was endorsed by the road congress.

City Reviews and Improves Many Streets.

Chattanooga, Tenn.—After eighteen months of successful and economic administration of the department of streets and sewers, under Commissioner A. N. Sloan, the city now possesses more miles of modern paved and cherted streets than at any other period in its history, and a considerable amount of the work was carried on during the past year. When Commissioner Sloan assumed the duties of his office eighteen months ago he found the streets in bad condition, many almost impassable, and a large majority of the chert streets which are now in first-class shape, had been abandoned so far as traffic was concerned. Not only were the chert streets badly in need of attention, but many of the asphalt streets in the heart of the city had deteriorated to an alarming extent. In fact, West Eighth street, between Broad and Chestnut streets, had practically been abandoned. With an annual budget of \$99,000, the commissioner during the past fiscal year, which closed Sept. 30, cherted more than fifteen miles of street, besides carrying on extensive repair work. This work was paid for out of the budget, set aside for the annual maintenance of the department. In the repair and chert work the commissioner apportioned the money over the city. No one particular section was favored, but wherever it was necessary to repair or chert a street, the forces were immediately sent. In addition to the above work, paid for out of the budget, the department has laid several miles of asphalt streets, which, of course, was paid for under the abutting property law. Besides the necessary street work, the department, out of the budget, has graded perhaps for approximately five miles of sidewalk in various sections of the city. All street work, including cherting and repair of streets, salaries, scavenger service,

street cleaning service, and, in fact, all work connected with the department of streets and sewers, with the exception of the paving work, carried under the abutting property law, is paid for out of the annual budget. Last year not only the above mentioned work was accomplished, but \$7,000 was spent in the purchase and equipment of the city stables, and the establishment and equipment of a blacksmith shop, and at the close of the fiscal year the department turned over to the city treasurer the sum of \$325.51, the unexpended balance of the 1911-12 budget.

Campaign Opened for Good Roads.

Reno, Nev.—Steps are being taken by the Commercial Club to bring to the attention of Governor Oddie and Legislative candidates the Oregon road building system that a similar system may be put into effect in this State. The general plan is to bond the State to pay two-thirds of the cost of highways in all counties, the counties to pay one-third. The counties are divided into three classes—according to population, mileage in each county and the assessed valuation of each county. It is intended to mould public sentiment to favor the good roads idea before the next session of the Legislature, that steps to acquire good roads in the State may be taken at that time.

SEWERAGE AND SANITATION

Plan Gala Event.

Spokane, Wash.—City commissioners of Spokane are planning a gala event to be held on the completion of a five-mile sewer in Spokane, the longest west of Chicago. City officials and representatives of civic organizations will walk from end to end of the sewer, which was built at a cost of \$486,000.

Polluted Water Causes Epidemic.

Troy, Pa.—An epidemic of typhoid fever that has been raging in Troy less than ten days, yet out of a total population of 1,288,172 people are suffering with the disease. Three of the number are dangerously ill. In addition, there are ten or twelve cases of illness in the town which it is feared will develop typhoid. Twenty-four of the patients are confined in the emergency hospital. As a preventive measure, Drs. Parsons, Davidson and Dann, of Canton, and T. Ben Johnson, of Towanda, have already administered typhoid antitoxin to 224 people. Not one of these has shown any symptoms of illness, the anti-toxin being administered simply as a preventative. The analysis of the water which Troy people used shows that the typhoid epidemic came from that source. The water was polluted at the source of the supply, but in just what manner the health department has not made public. A purifying plant was installed at the source of supply by the state department of health, but the water is being used only after boiling.

Utilize Sewage for Fertilizing Farms.

Santa Clara, Cal.—The sewer problem of Santa Clara will be solved if the plan presented and now being carried out is successful. The Board of Town Trustees has decided to divert the sewage from Guadalupe creek, and it will be used by farmers and growers of alfalfa. Several agriculturists have already asked for the sewage which will be furnished to them free as it comes from the septic tanks. Whether a sufficient number of farmers may be procured to use the fertilizer is the only question in the minds of the Santa Clara town authorities. Dr. William Simpson, County Health Officer, declares that the scheme has been successful elsewhere. The proposed change will be made immediately, and workmen busy flushing the tanks and filter bed and placing the sewer system in a more sanitary condition. It is stated that sewage which has gone through the septic tanks provides excellent fertilizing matter for alfalfa patches or any other variety of agricultural growth. "The time will come when all this sewage will be saved," said R. B. Roll, president of the Santa Clara Town Board. "In some of the old countries it would be considered a great waste to throw sewage

away. It is the main fertilizer of many of the countries of southern Europe, where the people excel in husbandry." This will remove the trouble at the Lick Mills Dam, but the effluent from College Park septic tanks will still empty into the creek. It has been suggested that College Park pursue the same course as Santa Clara in the event that the latter is successful.

Sewage Disposal Work Forging Ahead.

Rochester, N. Y.—The laying of the outfall pipe for the effluent of the sewage disposal works to be established in Irondequoit is progressing rapidly. A section of five lengths of pipe, 150 feet long, is being put in the bed of the lake every day now that the weather permits, against two sections a week earlier in the progress of the work. Assistant City Engineer Skinner said that pipe laying has progressed 4,500 feet from the crib end, 7,000 feet out in the lake toward the shore and that with fair weather for a month the submerged portion of the pipe can all be placed this fall. This was hardly expected when the work was begun in July. Construction of the double inverted siphon across the river which will receive the sewage from the west side of the city and which will take the place of a pumping plant is well advanced. The pipe has all been laid on the west side of the river and the coffer dam has been moved to the east side.

Building Sewer in Quicksand.

Summit, N. J.—Working 45 feet underground, two shifts of laborers, one by day and one by night, are rushing forward the West Summit sewer, which has developed into a difficult engineering problem because of quicksands. After Michael Loprete, of Orange, abandoned the work it was taken up by the Massachusetts Bonding and Insurance Company, his surety. It is said Loprete lost at least \$20,000 by the transaction. At the present rate of progress it is believed the big drain will be completed by January 1. The sewer is about half a mile long. It was plain sailing for Loprete so long as there was no quicksand. But when he attempted open-work construction in Passaic avenue, between Springfield avenue and the Lackawanna tracks, he struck a bed of shifting sand that filled the excavations as fast as they could be made. Loprete sunk a shaft and tried the tunneling process, but even this produced no results. When he had dropped a large amount of money he threw up his contract last summer. The Massachusetts company then took up the work, and for a month or more has had fifty men on the job. Edwin C. Hayden, of Boston, is superintendent of the work. The rate of progress is about 16 feet a day, but this is considerably better than the progress made the first week or two. It was found that much of Loprete's work had to be done again, which made the task more difficult than if his shafts had never been sunk. A large amount of special machinery was brought from Boston, including two air compressors, boilers and engines. These were installed just north of Springfield avenue. The main shaft goes down into the earth nearly 50 feet. Every day the work is inspected by City Engineer Blair, who believes it will be at least ten weeks before the drain is completed. The contractors, however, think they will finish by Thanksgiving Day.

WATER SUPPLY

Recommends Lower Water Rates.

Spokane, Wash.—A substantial reduction in city water rates for private fire services to factories, buildings, lumber yards, etc., will be recommended to the city council by Commissioner of Public Utilities C. M. Fassett. The new rates, not yet completely worked out in detail, will be based on the cost to the city of inspecting the private services and on the amount of water used annually for purposes other than fire by the premises served by the private fire lines. The present rate is a flat one per year, ranging from \$12 for a two-inch service to \$36 for an eight-inch service. The change will reduce the cost to manufacturers and building owners having standpipe or

sprinkler systems, except in the case where the person or firm getting the private fire service does not consume city water for any other purpose. The rate will raise the cost to the latter class, which is small. In addition, Commissioner Fassett will recommend fixing severe penalties for using fire lines except for fires. This will be to discourage the secret tapping of private fire lines for water for domestic or other purposes. The charge for fire service was put into effect this year for the first time by the city, and it met with strenuous objection from those forced to pay. It is believed by Commissioner Fassett that the new rates will obviate much of that objection. The recommendation to the council will include, besides the new rates and penalties, a proposition for refunding to all owners of private fire lines the charges they have paid this year in excess of what the charge would have been had the proposed rates been in effect all the year.

\$500,000 Water Works Gift to City.

Bennington, Vt.—The Bennington Water Works, of which Henry W. Putnam, of San Diego, Cal., formerly of New York and Bennington, is the principal owner, will be presented to the town on January 1. The water system was installed at a cost of \$300,000, but has been improved until its present value is estimated at \$500,000. Mr. Putnam says he will make the gift on condition that householders using the water shall pay half the present rate; that a sinking fund shall be established from the receipts to provide for maintenance, and that the remainder of the receipts shall be used to maintain a public hospital.

Complete New Reservoir.

Council Bluffs, Ia.—Water has been turned into the city's new reservoir and settling basins. The reservoir was begun early the present year and work upon it has been carried on all the time. Its dimensions are 300 feet long and 200 feet wide and it is 20 feet deep. The plans for it were drawn by Superintendent E. L. Etnyre of the City Water Department, and Burns & McDonald, architects of Kansas City. It cost the city \$41,500 and is another improvement made in the City Water Department since the purchase of the water plant by the city. The cost of it and the new pumps, which are among the largest to be installed in the state, was realized from the receipts of the city water department.

Screens Aid Water Supply.

Perth Amboy, N. J.—New wells of the gravel screen type installed at the Runyon water pumping station are producing an amazingly large amount of water and have proved, according to George Pfeiffer, Jr., their builder, that the best water producing land yet discovered in the state is that held by the city at Runyon. Mr. Pfeiffer, representative of the American Aerator Company, installed the last lot of wells, which he is just completing. Mr. Pfeiffer claimed all of the new wells were yielding beyond expectations and declared he would not be surprised if each would average 500 gallons a minute. The lot of new wells should afford a yield of 4,000,000 gallons of water a day, according to Mr. Pfeiffer. City Surveyor Mason said he expected the yield would be great, but not as much as that. He anticipated a production of about 2,500,000 gallons daily.

Advocates Weekly Tests of Water.

Springfield, O.—The employment of a bacteriologist and pathologist who will make weekly tests of the city water to determine its fitness for use is urged by Superintendent George S. Cotter, of the waterworks department, as a necessary health measure in Springfield. Mr. Cotter's position was based upon the recent experiences of the officials of the water and health departments in determining whether or not the city water was the source of the typhoid epidemic. The test showed the water to be free from dangerous bacilli, but Superintendent Cotter is impressed with the possibility of what might have happened had the water been contaminated. "If tests of the water were made every week, bacilli could be discovered as soon as they made their appearance in the waterworks

system," explained Superintendent Cotter. "Under the present arrangement the water is only examined when it is suspected that there is something the matter with it. Then it is too late. If something gets into the city water, dangerous to the health of the people of Springfield, we ought to have other means of finding it out better than the present method of letting an epidemic develop and then testing the water to see if it is the cause of it. The time to test water for such purposes is before anyone gets sick. If we had weekly tests of the water and it developed at any time that there was something suspicious in it, we could then warn the water users to boil all their drinking water, until we could find the source of the contamination and eradicate it."

Meter Demand Doubles.

St. Paul, Minn.—The number of water meters put in St. Paul houses has doubled since October 1, when the new rule of the department became effective, providing that all new applications for water service would be placed on the meter basis instead of a flat rate. Since the rule went into effect there have been about 200 applications. A pamphlet soon will be issued containing the revised rules of the water department, adopted after the reorganization, by J. H. Clowes, a New York expert.

Meter Water for Fire Service.

Reading, Pa.—Among other ordinances signed by Mayor Stratton is Common Council bill 27, requiring water fire service in a building to be controlled by meter, which will be under the supervision of the Department of Water. The meter shall be of a design to be approved by the Water Board and shall be supplied by them at the cost of the owner of the building. If the meter becomes damaged by frost, hot water or negligence the expense of any replacement or repairs shall be borne by the building, otherwise by the Department of Water. Water used in fighting fires will not be charged for by the Water Department, but any other consumption shown by the meter will be charged for at the prevailing rate. In case any person or firm refuses to comply with the ordinance their water supply will be discontinued. The mayor also signed S. C. bill 41 to give authority to the city to make all repairs to fire apparatus after, where the single repairs did not exceed \$25. The company was formerly liable for the payment of same. A number of companies failed to comply with this requirement, resulting in the apparatus getting into bad shape.

Water System Improved.

Pleasanton, Tex.—The waterworks system of Pleasanton has been greatly increased in efficiency by turning the overflow from the Mansfield artesian well into the mains. Residents in North Pleasanton now receive a bountiful supply of pure artesian water from the Mansfield well, while those in South Pleasanton receive a like grade from the well in the courthouse yard. Thus the water problem that has been confronting Pleasantonians for the past several months has been solved.

Canal Water Only Supply at Albion.

Albion, N. Y.—Residents of the village of Albion are again experiencing a water famine with nothing but Erie Canal water as their supply for drinking, culinary and all other purposes. The Albion Waterworks Company circulated printed notices stating that, after consultation with the village authorities, the company had decided that the supply of water in Eagle Harbor pond should be allowed to accumulate to the full capacity of that reservoir, and therefore Erie Canal water has been turned onto the filter beds at Lattin's bridge pumping station and those who are using the water for drinking purposes are advised of that fact, in order that they may boil the water. No report has been received from the State Conservation Commission since the hearings held during the summer, after the village voted an appropriation to install a municipal water works system, with its source of supply south of Albion. Those residents who are fortunate enough to have wells on their premises are sharing their water supply with numerous neighbors who do not care to drink the canal water.

University Makes Test of Eugene City Water.

Eugene, Ore.—After a series of tests of the water supply now furnished by the City of Eugene, the chemistry department of the University declares that the water is safe. The analyses, made by Professor Sweetser, have been continued over a period of 16 weeks, and show bacterial efficiency of the filter plant to be 98 per cent. These analyses will be continued from day to day, and should any dangers appear all use of city water will be prohibited in the university. The authorities of the university make a regular inspection of the city filter plant and maintain careful supervision over the system.

Water Experts Upset By Grapeland Flow.

San Bernardino, Cal.—The striking of a big underground flow of water in the Grapeland district, north of Fontana, has upset all the theories of water experts that the defined underground channels are walled by natural cement dykes. The scene of the new strike of water is to the west of the supposed wall of the Lytle creek channel. The water was encountered in large quantities at a depth of only 120 feet. The find was made on property belonging to E. D. Roberts, state treasurer, and additional wells are to be lowered in the section. The supposition is that the newly discovered water is a branch from Lytle creek's underground channel, but whether it has existed for centuries or has been formed recently water experts have not determined.

Pure Water Supply Secured by Ordway.

Ordway, Colo.—At a special meeting of the town board, the proposition made by the Pure Spring Water Supply company of Fowler came up for final action and was acted upon favorably. The company agrees to construct a pipe line from their springs west of Olney Springs to the section line near the alfalfa mill, work to begin before June 1, 1913, and to supply the town with pure spring water at the rate of \$1.50 per thousand gallons up to 10,000 gallons per day; from 10,000 to 5,000 gallons at the rate of \$1.25 per thousand, and over 25,000 gallons at \$1 per thousand. For the first six months after the completion of the pipe line the company agrees to accept payment only for the amount used, as measured by meter. For the second six months, 5,000 gallons and for the second year 7,500. After that the minimum is to be 10,000 gallons per day, during the life of the contract, which covers fifteen years.

Water Seepage From New Reservoir.

Council Bluffs, Ia.—Following the filling of the big reservoirs just completed at Thirty-seventh street and the Missouri river, it was found that the seepage was so great as to necessitate some changes in the original plans for the base of the big basin. Some days ago the water was drained out and a consultation of engineers, members of the board and the contractors was held. An engineer from the office of Burns & McDonald, who have been the consulting engineers in planning with Superintendent Etneyre, is in Council Bluffs making an investigation. After an examination it was decided that a covering of three-quarters of an inch of cement would remedy the defect and prove a sufficient safeguard against further seepage.

Fear Water Shortage.

Cornwall, N. Y.—This village is facing a water famine. Water is so low in the reservoir on Storm King Mountain that the trustees have cut off the supply from the West Shore and Ontario and Western railroads and the shafts of the New York aqueduct. It is expected that within a few days—in fact, at any moment—the trustees will shut off the entire supply of the town and save what is left for fire protection. If the trustees send out an official notice to this effect it is predicted that consumers will draw so much water to store for future use that the entire supply will be exhausted at once. Little rain has fallen in the town of Cornwall since last May. The last time Cornwall suffered from a drought was in 1908, and the suffering was intense. But unless there is a heavy downpour lasting at least three or four days or a series of rains at short intervals it will be far worse in 1912 than four years ago.

Realizing the danger from water shortage on account of the present small storage capacity, the matter of a new reservoir for a storage supply to be held for emergencies was taken up in 1908, but it has taken four years to bring the matter to a satisfactory conclusion. The new dam will be finished by November 1. The old reservoir holds about 65,000,000 gallons and the new one about 36,000,000. This will give the village a storage supply of about 100,000,000 gallons, enough to last three months or more under present conditions without rain, providing the population remains stationary and no new industries are added. Many believe that while the people were about it they should have voted for a storage capacity that would have done service for years to come. Others say that the village will be able to tap the main water supply of New York City that is to come from the Ashokan dam in the Catskills. The town of Cornwall, which includes the villages of Cornwall (Cornwall-on-Hudson), Canterbury, Firthcliffe and many smaller settlements, is one of the richest and most important along the Hudson. It is like a bowl in the centre of mountains, and each year the rainfall becomes more uncertain. The hills divert the storms in other directions and while it is raining throughout the surrounding country not a drop may fall in the town. The future safety of the place depends upon a largely increased storage supply.

Fear Water Famine in Waterbury.

Waterbury, Conn.—Superintendent of Water Charles E. McDonald states that the water situation in Waterbury is fast approaching a critical stage when there will be absolutely no water for the inhabitants, says Harry Danaher, who is in charge of the Wigwam reservoir, and that there is at least two weeks' supply left at the rate the water is being used daily.

At present the water at the Wigwam is twenty-six feet and eight inches below the spillway and lowering rapidly, for all the water is collected at the extreme lower end of the reservoir. About 4,000,000 gallons of water are being used each day which, while only half of the amount which was being used a few weeks ago, is still drawing the water out all too rapidly. The conditions at the East Mountain reservoir are not much better, for the water is going down there at a rate faster than it is coming in and the only reason that the reservoir is not entirely exhausted is because there is not nearly as large a drain upon it as upon the Wigwam. "We have not yet ordered any of the manufacturing plants to cease using the city water but unless rain comes within a day or two this step will become absolutely necessary," said Mr. McDonald. "The people must have water to drink and their interests must be looked after first."

Salt Water System Will Cost \$75,000.

Santa Monica, Calif.—City Engineer Phelps is preparing profiles for a salt-water system of mains and pumping plant, at an estimated cost of \$75,000. It is proposed to siphon the water into reservoirs, where the pumping plants will have ready access, and to provide the pumps with both electrical and gasoline engine power. One pumping plant only will be established on the municipal pier, where it can be operated by men employed at the electrolytic sanitary station.

Install Transmission Main.

Hagerstown, Md.—Among other important business transacted by the Board of Directors of the Washington County Water Co. at its last meeting was the installation of 13,000 feet of 20-inch transmission main extending from the 100,000,000 gallon reservoir at Edgemont to the Smithsburg reservoir. For some months past it became evident that, due to the diminution of the Smithsburg streams, the increased consumption in this city and also a great amount of waste in private dwellings due to defective fixtures, that the present 12-inch main from Edgemont to Smithsburg did not have sufficient capacity to supply the company's needs. President Lane and Gen. Manager Heard were requested to investigate into the efficiency and durability of wooden pipe which, it is understood, is being used extensively in other places. This proposed improvement is estimated to cost between \$15,000 and \$20,000.

STREET LIGHTING AND POWER

Electric Current for Pulaski.

Pulaski, Va.—The Appalachian Power Company has turned current into Pulaski from the developments of the water-power along New River, in Carroll County. This is the fifth town to be supplied by electric current from these developments of the company, Byllesby, Bluefield, Switch Back and Wytheville having been first connected. The power is carried over the high tension wires from Byllesby at 88,000 volts, at which it enters the sub-station at Pulaski.

Owensboro to Have Great "White Way."

Owensboro, Ky.—Owensboro is to have a "white way" if present indications are to be counted. Every business man in the city that has property on Main and Frederica streets has been asked to attend a meeting to be held for the purpose of signing agreements to have large signs or lights placed in front of their property.

An Objection to Laying Cables Without Conduits.

Grand Rapids, Mich.—Abraham Sarochkin, a junk dealer, while searching in an areaway under the sidewalk on Monroe avenue, spied a fine piece of lead pipe. Sarochkin cut off all he could carry and then went home happy. Simultaneously half of the new down-town boulevard lighting system went out of commission, for Sarochkin had cut the secondary cable carrying current. He is in jail charged with larceny.

Municipal Light Plant Saves Citizens \$198,000.

Pasadena, Cal.—"Perhaps the people would rather see the profits of the municipal light plant coming in bigger money," said General Manager Koiner, "but the fact remains that the people are being saved a great sum by the municipal light plant, directly, in money in their pockets, which otherwise they would have had to pay out in cold cash. The saving to the people of Pasadena during the past year, because of the municipal light plant, was not less than \$198,000. I mean by this that, with the present rate which was forced by the city plant, the people last year paid \$198,000 less for light and power than they would have had to pay, had there been no municipal light plant and no consequent reduction in light-rate. If the light-rate now was as high as it was before the city started its plant, the municipal light plant would show a simply tremendous profit instead of the moderate profit it is now making. The people are merely getting that money now in direct saving in the cost of living."

Chattanooga "White Way" Assured.

Chattanooga, Tenn.—An ordinance granting the right to the Retail Merchants' Association to erect lights on the streets of the city and pledging the city to the upkeep of the system of lights, has been passed by the committee. With the passage of the ordinance—the "white way" is an assured fact and work will be started within a short time. A total of 114 inverted lamps will be used, cut-outs being on each post. The wires will be laid underground in No. 8 steel-armored cable and will have a working pressure of 8,000 volts. The posts will be of an ornamental design painted with black enamel and mounted on a concrete base. The white way is costing the merchants of Market street \$5 per front foot. This pays for the installation and all other things. The current comes from the Chattanooga Railway & Light Company under an offer from it to light the posts free of charge until the expiration of its contract with the city of Chattanooga. This offer was the move that made it possible for the white way to be installed at once.

Dallas Street Poles Increase in Number.

Dallas, Tex.—Recently the city of Dallas passed an act requiring the electric light and power company to place in conduits all its wires except those for the trolley. The telephone companies have already placed in conduits their wires in the principal paved thoroughfares of the city. Elm street has had installed at the expense of the property owners, to be maintained by the city government, a system of street illumination which cost \$5,610 for

the 102 poles and lights and \$4,590 for the first year of maintenance. With the setting and other expenses the cost was more than \$16,000 for the district from Austin to Harwood. Poles are seventeen feet high, fifteen feet to the 2,000-candlepower magnetite lamps. Posts weigh 1,400 pounds. Now it is purposed to have special illumination, of much the same sort, on Main and Commerce streets, from Houston street, the entrance to the city from the Oak Cliff viaduct, eastward to Central avenue. The distance is a little more than one mile on each street, or more than two miles on both. The cost is estimated at about \$46,000 to \$50,000 for the installation of the system.

Redlands to Order Wires Underground.

Redlands, Cal.—The City Trustees will order the removal of all electric light, telegraph, telephone and traction line poles on the main streets in the business section of the city. The companies will be forced to place their wires underground. This movement was started several years ago and the poles were removed on State street. But the companies asked time in making the removals and it was given them.

FIRE AND POLICE

Place Wires Underground.

Springfield, O.—All of the wires connecting the fire alarm boxes located in the central part of the city will be placed underground, so that there will be no danger in the congested districts of the city. The new boxes are placed inside of an iron pedestal about three feet above the ground and along the curb line. All of the work is being done by the city firemen during their spare time, under the direction of Lawrence Bosley, superintendent of the fire alarm system. The wires were placed underground over a year ago and all that is being done now is to connect them to the pedestals and place them inside the new boxes.

Galveston Fire Loss Lowest.

Galveston, Tex.—Galveston has the smallest fire loss per capita of any city in the state of Texas. This point and others of interest in connection with fires is brought out in the annual statement for 1911, issued by the National Board of Fire Underwriters, under date of May, 1912. The report of the committee on statistics and origin of fires was received by John H. Gernand, chief of the Galveston fire department. The report dealing with loss per capita is especially interesting. Galveston's loss is 51c. El Paso has the next smallest loss with 66c. From these two amounts, in cents, the loss jumps into dollars. Austin shows \$1.21, Waco \$2.48, Fort Worth, \$2.98, San Antonio \$3.26, Beaumont \$3.28, Dallas \$7.07, Houston \$44.50.

Police Must Take Pledge.

New Westminster, B. C.—Hereafter New Westminster policemen will have to sign a teetotaller's pledge before they will be allowed to wear the blue coats and helmets. Two vacancies on the force at present will not be filled, declares the chief, until men who do not indulge are found. There are some who say that the police commissioner will have to employ women policemen if Chief Bradshaw's plans are carried out.

Install Gamewell Fire Boxes.

Meadville, Pa.—Within the past few weeks there have been eleven boxes of the latest style of the Gamewell box placed in various sections of the city, which now gives a total of forty-one such boxes in Meadville. The posts upon which the fire alarm boxes have been placed will be painted white so that they may be easily distinguished, especially at night. With the addition of the new auto fire truck, which is now in commission it is the intention of the city to keep abreast of the times in all ways regarding the fire system, and while all of the fire alarm boxes are in good working order and will fill their purpose for years to come, the new box, which is of the latest design, is attracting considerable attention.

MOTOR VEHICLES

Alco Truck for the City.

San Francisco, Cal.—An interesting sale in the truck line has been made by the Auto Sales Company, which has delivered to the San Francisco Health Department a five-ton Alco truck. It is to be put in the service for the Relief Home. It carries a 1,200-gallon oil tank, which is so installed that the tank can be quickly dismounted, leaving the regular truck body.

Auto Explodes, Injuring Many.

Petaluma, Cal.—Forty persons were burned severely in an automobile explosion, which may cost the lives of Mayor Zartman and three others. A crowd gathered about a burning automobile that had been dragged from a garage. Mayor Zartman, who was former chief of the fire department, attacked the blaze with a chemical extinguisher, and was thrown 40 feet by the explosion which ensued. The crowd was swept by a blast of flame and several persons were trampled upon in the panic which followed. Thirty victims of the accident were treated at a local hospital.

Auto Fire Apparatus Shows Its Efficiency.

West Orange, N. J.—The necessity of an automobile fire apparatus in West Orange was demonstrated when a fire broke out in the home of Joseph Alkins, who lives on the second mountain. Had it not been for a remarkable hill-climbing demonstration by the machine the house would probably have been gutted. As it was the fire, which originated from a defective flue, damaged the roof of the house to the extent of \$500. When the machine arrived at the house the roof was in flames, but the pump on the apparatus worked excellently and the firemen succeeded in confining the blaze to the top of the house. It was principally in fear of fires in houses on the mountains that the machine was purchased.

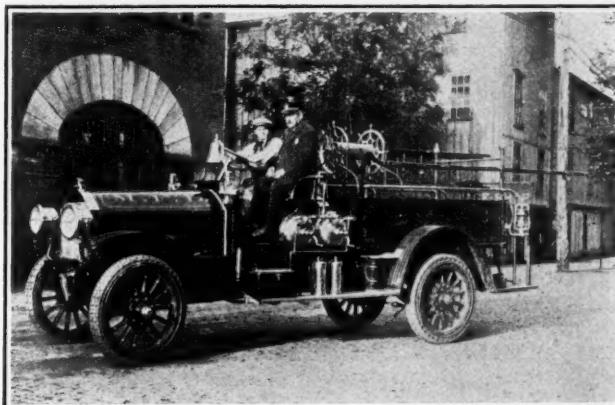
Must Reduce Speed of Motor Vehicles.

South Bend, Ind.—As a result of persistent complaint against the dangerous speed used by drivers of motor vehicles of the police and fire department in this city, the board of public safety has adopted resolutions forbidding the driving of machines at a rate of speed greater than thirty miles an hour. This will mean a general reduction in the rate of speed police and fire wagons will run in response to alarms or emergency calls. The order of the board will become effective at once. In adopting the resolutions nothing was said as to what would happen to drivers who chanced to disobey the order.

Fire Auto Makes Good in Test.

Newark, N. J.—A Webb auto truck in a test for the fire department ascended the Court street hill backward. Several hundred more pounds were aboard than the car would be required to carry in service. An extra burden was placed aboard when it looked as though the test was to be declared off because President Weber, of the Fire Board, observed that the apparatus had been stripped of all ladders except the 75-ft. extension. He declared the test, if made, could not be considered unless all ladders were on the machine. A. J. Webb, head of the firm which made the vehicle, declared the weight of the missing ladders to be about

600 pounds. He pointed out two tool chests on either side of the truck weighing 200 pounds each, and then announced that he would carry 17 men. This was satisfactory to Mr. Weber and the other commissioners. Commissioner LeGay and Fire Chief Paul J. Moore took their places on the board, and the rest of the number were picked from the crowd of onlookers at the City Hall. It was figured that about a half ton more weight than the machine would ordinarily carry was aboard when the truck started its climb up Court street.



Courtesy the Independent.

AUTOMOBILE APPARATUS FOR MASSILLON, O., FIRE DEPARTMENT.

Fire Apparatus for Corpus Christi.

Corpus Christi, Tex.—Corpus Christi now has modern fire apparatus. W. P. Bishop, representing the American La France Fire Supply Company of New York, has turned over to Fire Chief Ed Shoemaker the combination chemical engine and hose wagon and the hook and ladder truck which the city purchased several months ago. The two pieces of fire fighting apparatus were purchased by the City Council last spring. The new truck and the hose wagon will be stored in temporary quarters pending the completion of the new city hall and fire station. In the new building ample space is provided for housing the paraphernalia and horses of the department and also providing quarters for the firemen. When the station is completed the city will provide regular paid firemen to assist the volunteers and paid men will remain at the station.

Motor Apparatus Makes a Good Showing.

San Jose, Cal.—Officials who witnessed the recent try-outs of motor-driven fire vehicles were much pleased with the results shown. Several lines were represented, the purpose being to make a sale, the choice to be made at the next meeting of the mayor and common council. San Francisco agents made demonstrations of the machines which they sell. The American La France combination pumping engine and hose wagon made a fine showing. Fire Chief Haley expressed his satisfaction with all tests made. The engine pumping test was 600 gallons a minute. This machine developed a speed of 65 miles per hour on a road test. Pressure at the nozzle was 105 pounds and at the engine it was 180 pounds. This will readily throw a stream of water 80 feet into the air. Pleasing results were



Courtesy the Texarkanian—Texarkana, Ark.

TEXARKANA'S AUTOMOBILE AND OTHER FIRE EQUIPMENT.

made by the White fire machine. This car will pull an engine without any apparent effort or strain. The engine is a 6-cylinder, mounted on a combination fire car. This system is preferred by some on account of permitting the use of steam power for the pumping engine. The gasoline engine is fitted to the fire car so as to pull the pumping engine. As developed at the present time, gasoline engines have not proven as satisfactory for pumping power as have the steam power engines. The White machine made a speed of 50 miles per hour on a road test.

Automobile Sprinkling Wagon for New Orleans.

New Orleans, La.—On its arrival in New Orleans the new auto sprinkling wagon that is to be used in sprinkling the New Basin Shellroad from Carrollton avenue to West End was exhibited in front of the city hall by the Joseph Schwartz Company, which furnished the vehicle. The arrangement of the city with the Shellroad board was that the city was to furnish the auto sprinkler and the water, and the Shellroad board was to pay for its care and for operating it. Commissioner George Smith stated that the machine will not be under the jurisdiction of the public works department, as the other street paraphernalia is.

Exhibit of the Ahrens-Fox Fire Engine Company.

Denver, Colo.—The Ahrens-Fox Fire Engine Company of Cincinnati, Ohio, exhibited two fine specimens of modern motor apparatus, one of them representing an auto pumping engine and hose carrier of the gasoline motor type, and the other a steam electric or motorized steam fire

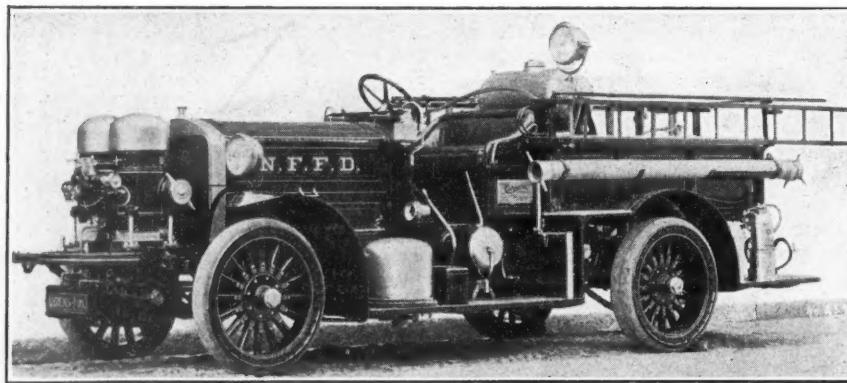
had devised a very practical way of keeping step with the modern pace, and they invite correspondence on the subject of steamer "conversions." The model A gasoline machine exhibited by the same company was devoid of all paint. This enabled the observer to judge more accurately the metals chosen for the component parts and to determine the character of the workmanship. The materials selected for each purpose are of the most appropriate kind; the design throughout shows evidence of good construction and attention to details. These engines are well balanced and from the standpoint of convenience, accessibility, together with the special features of indirect cooling, electric starting, etc., all indicate that considerable advance has been made in perfection of the piston pump gasoline-driven fire engine. The builders have issued a new and special booklet, which briefly describes the principal points concerned with their engines and which they will be pleased to mail to all who are interested in the subject. The Ahrens-Fox company as represented by its president, Charles H. Fox; John P. Ahrens, vice-president, and a corps of assistants, including Arnold Neuenschwander, who is well known from his former connection with the Louisville fire department. While at the convention, Mr. Ahrens received a telegram to the effect that Washington, D. C., had accepted the proposal for another Ahrens motor engine.

Give Test of Seagrave Pump.

Youngstown, O.—When a hose connected with the Seagrave motor pumping engine, which was being tested at Lake Glacier, burst, W. L. Carson, a spectator, was picked up by the stream and turned over a couple of times before he got out of range of the stream. He was hurried to the City Hospital in Chief Loller's automobile, where it was said his injuries were no more serious than mere shock. Besides Carson a dozen or more chiefs, who were watching the test of the machine, looked like drowned rats, but they took the impromptu shower bath as a joke. One of the tests of the pump was to turn off the nozzle of the hose to show how the pump would work with the water held back. The force broke the hose.

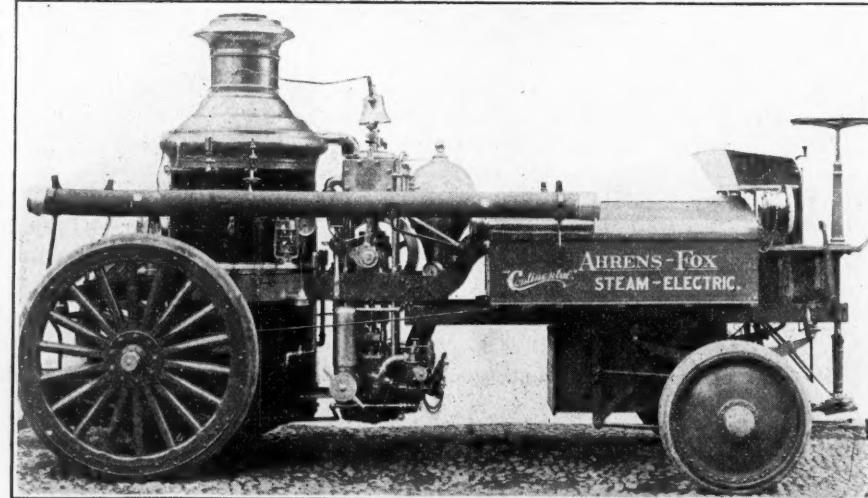
More Auto Fire Apparatus.

Shreveport, La.—Two more pieces of new automobile fire-fighting equipment have been tested in Shreveport. The machines are combination pump engines, one motor carrying the machine to the scene of a fire and also pumping the water after arrival. The machines were named after Mayor John H. Eastman and Commissioner John McCullough. This gives Shreveport eight pieces of automobile fire-fighting apparatus in addition to several horse-driven engines and wagons.



GASOLINE PUMPING ENGINE.

engine. With reference to the latter, it was explained that the electric drive feature of this machine is intended as an attachment which can be modified in its design, with a view of applying the device to steamers already in service. The nature of the arrangement is such that the old front running gear of a horse-drawn engine can be removed, the electric driving apparatus being substituted, thus affording a conversion which is at once effective, convenient and also pleasing in its general appearance. The engine exhibited in this connection was a Continental of the first size, with a pumping capacity of 900 gallons per minute. The wheel base is moderately long, and the demonstrations made upon the streets of Denver may be accepted as proof that the steam electric combination is entitled to consideration, because it answers very satisfactorily the question of what shall be done to bring the steam fire engine up to the motor-driven standard. As the manufacturers state, "this combination of tried elements retains every advantage that the steam fire engine ever possessed, and adds the speed and endurance which the best horses lack." Many who witnessed the demonstrations agreed that the Ahrens-Fox company



ELECTRICALLY PROPELLED STEAM FIRE ENGINE.

Motor Apparatus Makes Trouble in Volunteer Companies.

Middleboro, Mass.—The new automobile combination fire truck has been put in commission at the School street house, and with it has come dissensions in the fire department that will never be healed. The advent of the combination truck means that two companies, Hose 1 and the chemical company, will be disbanded and the members, those of whom have not been chosen for the new truck, will have to quit the department, many of them after over 30 years of active volunteer service. The new truck will be manned by eight men besides the driver, who will be a permanent man stationed at the house. Of the 115 men in the department none of them knows how long his job is going to last. Many of them care nothing for the money, which is only \$30 per year, but they do not like the methods that are being used to separate them from the service they have followed so long, and they refuse to resign claiming that they are employed by the year. Another reason for their holding out is the fact that many of them are members of the Relief Association and that once out of the department they are out of the association and can claim no benefits.

GOVERNMENT AND FINANCE

Adopts Commission Form.

Willis, Tex.—The town of Willis adopted the commission form of government by a majority of 70 votes.

"Municipal Research" Commission Planned.

Chattanooga, Tenn.—At a special meeting of the City Commission, Mayor Thompson introduced a resolution providing for a Bureau of Municipal Research, and setting aside \$600 to maintain the organization. The resolution passed its first reading. Although the appointment of the members of the bureau is with the City Commissioners, the following organizations will be asked to designate one member each, the Pastors' Association, the Central Labor Union, the Chamber of Commerce, the Manufacturers' Association and the Women's Christian Temperance Union.

Decides in Favor of Annexation.

Revere, Mass.—Revere, the second largest town in the State, decided at a special town meeting to do away with the town form of Government and by a large vote decided in favor of annexation to Boston. This proposition received 658 votes, a plan to adopt a city charter 158 votes and one for a commission form of government 85. These three plans will go before the Legislature for approval and will then be resubmitted to the voters for final decision. Revere has a population of 20,000.

STREET CLEANING AND REFUSE DISPOSAL

Revenue from City Crematory.

Spokane, Wash.—For the first time, the city is beginning to obtain a revenue from refuse and garbage collected by the municipal crematory. Crematory Superintendent Arthur Peterson announced that he has entered into contracts providing for the sale at \$4 a ton of all waste paper collected by the city to a contractor who resells it to the Inland Paper Mill, and with a local supply house, which buys all the old rags collected by the city at 1 cent a pound. In addition, the superintendent has made arrangements to sell to farmers or others a fertilizer, a waste product of the crematory, for from \$5 to \$10 a ton, according to the amount purchased. The question of installing a small smelter at a cost of \$2,000 to segregate the tin, solder and sheet iron from tin cans collected has also been looked into by Mr. Peterson, but the amount of tin cans collected is not yet large enough to warrant the installation. "The salvage so far is small, but it helps in the operation of the crematory, and we hope to make it larger," said Mr. Peterson. "The old paper is sold for remaking into new paper; the old rags are cleaned and sterilized by the supply company and sold as cleaning rags for wiping machinery, etc. If the number of tin cans collected warranted it and the

smelter were installed, the iron from the cans could be sold for window weights and other uses, and the tin and solder made into bars and sold for the regular price these metals bring."

Invent Method But Have Not Devised Machine.

Los Angeles, Cal.—With a regard for the comfort and safety of city traffic, the officers of the Automobile Club of Southern California have worked out a quicker and more efficient plan than the one now employed for cleaning city streets. The matter is now being considered by the Los Angeles Street Railway Company. Should the plan appear feasible to the railroad officials steps will immediately be taken to put the system into effect. The plan suggested by the Automobile Club involves cleaning the streets by means of air tanks fastened to the street cars. The cleaning of the streets could then be quickly and efficiently done during the hours when there is the least traffic, those between 2 and 4 a. m. having been advised. Motorists who have had trouble and accidents caused by tire skidding while the streets were being flooded under the present system, are watching the outcome of the safer plan with interest.

RAPID TRANSIT

Street Railway is Bought for Junk.

Exeter, N. H.—A street railway connecting Portsmouth and Exeter was sold at auction as junk last week for \$55,000. The road was built in 1902 and has always been run at a loss since it was opened to traffic. There were not enough people along the line to support it.

Enjoins City on Car "Ad." Bill.

Chicago, Ill.—A temporary injunction restraining the city from enforcing the ordinance recently passed by the City Council prohibiting railroad companies from displaying advertising matters in their cars, was issued by Judge Baldwin in the Circuit Court. The final hearing of the case was set for Oct. 30. The suit on which the injunction was granted was filed by the Chicago & Western Indiana Railroad Company. The ordinance which is being attacked was passed by the council July 1, 1912. It is contended that the council had no power to pass the ordinance and that it is unreasonable and void. The order was entered by agreement between the city and counsel for the railroad company.

Invents Automatic Block System.

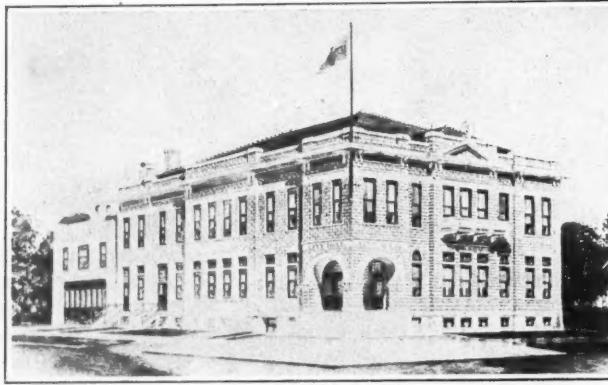
Kalamazoo, Mich.—An automatic block system for electric roads, that operates lights, bells or similar apparatus, that is inexpensive, durable, safe, practical, and which cannot be operated by man, is what is claimed to be the recent invention of Homer A. Parrish, Kalamazoo. Mr. Parrish has made a study of the subject of automatic signals for several years, having taken out many patents along that line, and now believes that he has a useful, and safeguarding device for both city and interurban car lines. The system is devised particularly for single track interurban and city lines, and is to be erected between switches, to prevent cars from meeting on the single track stretches. A swinging bar is placed hanging slightly oblique to the trolley wire, and just above it, and a car passing in one direction operates the controller by the groove of the trolley wheel, swinging the bar toward the trolley, and when the car travels in the opposite direction the bar is operated by the flange, and the bar is swung away from the wire. When a car leaves a switch, entering a block, the suspended bar above the trolley is swung toward the wire by the trolley wheel, which closes the electric circuit and lights the semaphore at the next switch down the track. This light remains burning until the car arrives at the next turn out, when it strikes a cut-out box, suspended above the wire, and which operates in the same manner as the circuit controller. This second box automatically throws the light out, and a car passing this one at the switch goes through the same process in returning over the same line of rail. Provision has been made by Mr. Parrish that if a car enters a block, and backs out, the light is thrown off just the same, as both a cut-out box and circuit controller are

placed at each end of the block. The system is very inexpensive, and it is planned by the inventor to place several of the controller boxes between the switches, and to have all operate the same semaphore. The object of this is two-fold. The first is that if for any reason whatever, the first box failed to turn on the light, that the second box will do it, and the second and more important object of this plan is to protect the rear cars if two or more are running through the same block. The controllers at frequent intervals will keep the warning light burning until all cars are out of the block. The big thing that the inventor claims for the device is that he has a controller that will work, and that is something that men have been unsuccessful in obtaining in twenty-five years of study. The trouble has always been in the wire controllers that anything heavy enough to work satisfactorily would knock the trolley off, and anything that would knock the trolley off was not practical. The block system devised by Mr. Parrish brings no pressure or blow on the trolley. The block system can be used with the regular samaphore, to ring crossing bells, or light street crossing signs, and with countless other relays now in use in the country. The controllers are operated on an open circuit except when the car is in a danger zone, thus no power is used except when the car is in the block. Associated with Mr. Parrish in the work is Colonel G. E. Dunbar, who is promoting the invention, and working with Mr. Parrish. The inventor obtained his first patent for electric road block systems in 1892, and the method then patented is now in use on some of the third rail systems. The patent office has allowed the patent on this device and Mr. Parrish will have six months in which to improve his idea before closing the patent.

MISCELLANEOUS

Port Clinton's City Hall Completed.

Port Clinton, Ohio.—Port Clinton's new city hall, a picture of which is given below, has been constructed at a cost of \$25,000 and is now practically completed. The building when fully equipped will represent an expenditure of \$32,000, not including the site which was bought



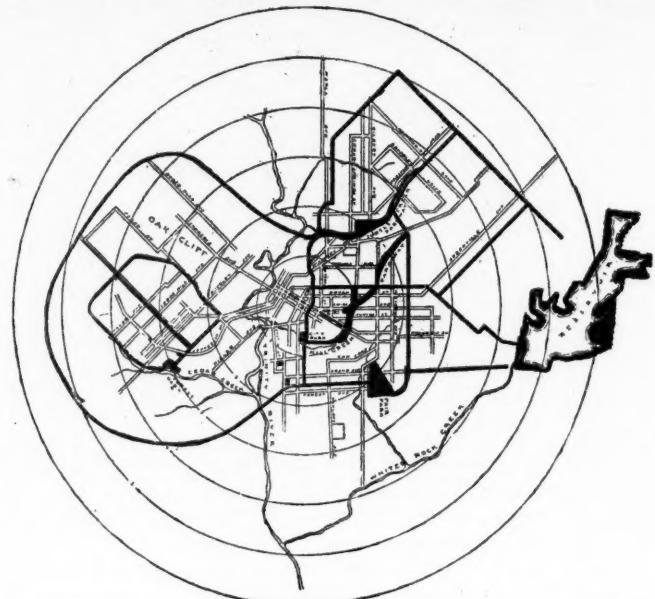
Courtesy Toledo Blade.

NEW CITY HALL AT PORT CLINTON.

from Mrs. Eliza Sylvester, at corner of East Market and Adams street, for \$5,000. It will be necessary to vote this fall on a special bond issue of \$6,000 to raise money for the furnishing of the building, purchasing plumbing fixtures, electric light fixtures and walks. Contractor William Miller of Toledo erected the building. Plans were drawn by Architect Shively of Sandusky. The building, which is of stone, is one of the finest city halls in the state, among cities the size of Port Clinton. It has a foundation 65 feet wide and 125 feet long and is two stories above the basement. The building is equipped with an automatic heating and ventilating system, which was installed by Huber & Wolfe of Port Clinton. The police room, ladies' rest rooms, street commissioner's two rooms, a tramp room, boiler and coal room with the jail, which has eight cells, are in the basement. On the first floor is an auditorium, which will seat 600 people, the public library, an emergency hospital and the fire station.

Dallas Plans to Beautify City.

Dallas, Tex.—George E. Kessler, landscape architect, Kansas City, has made plans for development work at Dallas, and the map given illustrates the ideas he would



SYSTEM OF BOULEVARDS PLANNED FOR DALLAS.

carry out. The black lines in the map are boulevards, planned for both Dallas and Oak Cliff. It is contemplated ultimately to convert White Rock reservoir into a beautiful park, of which the water would prove a material scenic factor.

Will Erect City Clock.

Wilkes-Barre, Pa.—At a recent meeting of the fire committee of councils it was recommended that a permit be granted Simon Long's Sons, clothiers of South Main street, to erect a large illuminated clock on the roof of their store. It is the intention to have the standard nine feet high, and the clock will weigh at least 400 pounds. There will be chimes and the cost is approximated at \$1,000. It was also decided by the committee to inspect a utility fire and police automobile for sale by the Matheson company. This machine could be used to haul hose and in cases of necessity as an additional automobile. It could also be used for testing fire alarms and carrying equipment.

Work on Municipal Machine Shop Begun.

Los Angeles, Cal.—Work has commenced under the supervision of Building Inspector J. J. Backus on the municipal foundry, garage and machine shop. Excavating of the site for the foundation of the big reinforced concrete structure has already been commenced, and it is believed that it will not be many weeks before the latest municipal building is completed. The plans for the building and the supervision of construction are being cared for by the building inspector, who hopes to save \$1,000 on the plans alone and over \$5,000 on the construction of the building by use of day labor and subcontract.

Concrete Work on Dock Started.

Erie, Pa.—Concrete work on both of the waterfront improvement jobs, the retaining walls and landings on the west side of State street alongside the canal basins and the wall in the widening of the street near Hamot hospital, have been started. Contractors hope to get all of the concrete mixing finished and laid before the frosts interfere. On the state commission work along the canal basins, the concrete is to be poured into adjustable steel molds that can be removed. On the city work, Contractor O. S. Riblet has not so large a task in the walls that are to be constructed. Paving of the lower end of the street cannot be carried out until the filling has been put in as a foundation.

LEGAL NEWS

A Summary and Notes of Recent Decisions— Rulings of Interest to Municipalities

Street Flushing Machine Patents.

American Street Flushing Co. et al vs. D. Connolly Boiler Co.—The Ottofy patent No. 795,059, for a street flushing machine, held not anticipated, valid, and infringed.—U. S. Circuit Court of Appeals. 198 F. R., 99.

Police Pensions—Statutes—Amendments.

Lyons vs. Police Pension Board of Chicago.—Act July 1, 1911, entitled, "An act to amend an act entitled 'An act to provide for the setting apart, formation and disbursement of a police pension fund in cities, villages and incorporated towns,'" approved and amended, etc., and extending the police pension fund to police matrons, was not invalid as containing matter not within the title of the original act, which was sufficient to include in its general scope any person connected with the police department whom the Legislature might think entitled to such protection.—Supreme Court of Illinois. 99 N. E. R., 337.

Public Securities or Bonds—Statutes.

City of Lawton vs. West.—Bonds issued by a municipal corporation in pursuance of an act of the Legislature, approved April 17, 1908, the provisions of which are to be found in Comp. Laws 1909, to raise revenue or funds with which to make street improvements in a city, which are to be paid by special assessments levied against the property benefited by the improvements, are not "public securities or bonds," within the meaning of an act of the Legislature, approved March 24, 1910, entitled "An act for the protection, validation and sale of bond issues of the state, counties, townships and municipalities and all other political organizations and subdivisions of the state of Oklahoma"; and such bonds are not required to be examined and certified to by the Attorney General as ex officio bond commissioner.—Supreme Court of Oklahoma. 126 P. R., 574.

Contracts—Partial Performance.

Mayor and City Council of Baltimore vs. J. A. Kinlein & Co.—Where a contractor for the erection of concrete steps in a city park did not complete them in strict compliance with his contract, he could not recover on the contract; but, where the materials furnished and the work done by him were accepted by the city, he was entitled to recover in an action of assumpsit the value of such materials and work, less any damage the city sustained from his failure to perform the contract and what it was required to pay for other materials or work necessary to complete the work in accordance with the contract.—Court of Appeals of Maryland. 84 A. R., 483.

Defective Streets—Contributory Negligence.

Yocum vs. Reading City.—In an action to recover for injuries sustained by a fall from a motor cycle, plaintiff is not guilty of contributory negligence, as a matter of law, where the evidence shows that he was riding over an asphalt pavement with numerous holes therein, with which he was not familiar; that he was riding at a very slow speed; that he encountered a large hole, but passed it, keeping close to the curb; that between the curb and the railway track were several teams; and that while his attention was directed to the street bed and also to the teams he ran into another hole, which he did not see, and was injured.—Supreme Court of Pennsylvania. 84 A. R., 510.

Recovery of Tax Paid.

Mayor and City Council of Baltimore vs. Harvey.—Taxes voluntarily paid under a mistake or doubt of law cannot be recovered back, even though there was no legal or moral obligation to pay, and the recipient has no right in good conscience to retain.—Court of Appeals of Maryland. 84 A. R., 487.

Prosecution for Violation of Ordinance—Costs.

Nephi City vs. Forrest.—A prosecution in the name of a city for a violation of an ordinance is in its nature criminal, and is not within Comp. Laws 1907, providing for costs in an action involving a municipal fine, and one acquitted of violating an ordinance is not entitled to judgment against the city for costs.—Supreme Court of Utah. 126 P. R., 332.

Contracts—Assignment—Liability Under Bond.

City of Philadelphia, to Use of Dagney, vs. Neill et al.—Where a city contractor gives a bond to pay for all labor and materials furnished under the contract, and being unable to perform assigns the contract to another who agrees to complete it and pay the contractor one-half of the profits, the assignee cannot maintain an action against the surety for labor and material furnished by him.—Supreme Court of Pennsylvania. 83 A. R., 375.

Personal Injuries—Obstruction of Streets.

MacDermott et al. vs. City of Philadelphia.—In an action for injuries to a boy by alleged defects in a street crossing, evidence that the city had provided a safe crossing a short distance away, and that a new crossing in process of building was obstructed, held insufficient to sustain a finding that a defined path had existed at the point in question for such length of time that the city should have guarded against the dangers thereof.—Supreme Court of Pennsylvania. 83 A. R., 606.

Regulating Rates for Gas and Electricity—Power.

Charleston Consol. Ry. & Lighting Co. vs. City Council of Charleston.—Act Feb. 13, 1912, amending Act Feb. 23, 1910, creating a public service commission authorized to fix charges for gas and electricity, did not abrogate a right to fix charges, which was expressly reserved by the city of Charleston in the franchise granted to a public service corporation, where the commission had not undertaken to fix such rates.—Supreme Court of South Carolina. 78 Ser. 390.

Corporation Yard—Liability for Rent.

Larsen vs. City of New York.—Where a municipal corporation, after the expiration of the lease of certain premises used as a corporation yard, continued in possession, it was liable for rent, in the absence of an allegation and proof of eviction; and this, through the city's possession of a portion of the premises was somewhat interfered with.—New York Supreme Court. 137 N. Y. S., 144.

Regulation of Streets—Temporary Obstruction.

City of Lawrenceburg vs. Lay.—A city, in the exercise of its police power and independent of ordinance, has a right to temporarily obstruct the use of its streets and alleys to prevent the assemblage of a crowd, to the annoyance of adjacent property owners, as well as persons passing in the street; and where it ropes off an alley by a rope, sufficient to give notice of its presence and not to interfere with the ordinary use of the sidewalk, it is not liable to a person injured by being struck by the rope, after it has been broken by a runaway horse.—Court of Appeals of Kentucky. 149 S. W. R., 862.

Maintenance of City Streets—Railroads.

City of New Bern vs. Atlantic & N. C. Ry. Co.—A franchise by which a railway company obtained a right of way through a city street provided that such railroad would "keep and preserve in good order for the use of the citizens of the town" that particular street. Held, the obligation of the railroad will not be measured by the size and condition of the city at the time the contract was entered into, but by the new and improved methods of paving demanded by its growth and changing conditions, which must have been within the purview of the parties at the time of making the contract, so that the railroad must provide a permanent pavement, where it was necessary to provide the public with the same accommodations as were afforded by similar streets of the city.—Supreme Court of North Carolina. 75 S. E. R., 807.

NEWS OF THE SOCIETIES

Calendar of Meetings.

November 12-15.

AMERICAN SOCIETY OF MUNICIPAL IMPROVEMENTS.—Annual Convention, Dallas, Tex.—A. Prescott Folwell, Secretary, 50 Union Square, New York.

November 20-21.

SOUTHERN APPALACHIAN GOOD ROADS ASSOCIATION.—Fourth Annual Convention, Atlanta, Ga.—Cyrus Kehr, Vice-President, Knoxville, Tenn.

November 19-22.

AMERICAN CIVIC ASSOCIATION.—Annual Convention, Baltimore, Md.—Richard B. Watrous, Secretary, Union Trust Building, Washington, D. C.

December 3-6.

AMERICAN ROAD BUILDERS' ASSOCIATION.—Ninth Annual Convention, Music Hall, Cincinnati, O.—E. L. Powers, Secretary, 150 Nassau street, New York City.

December 12-18.

NATIONAL ASSOCIATION OF CEMENT USERS.—Annual Convention, Pittsburgh, Pa.—R. L. Humphrey, President, Harrison Building, Philadelphia, Pa.

December.

FIRE EXPOSITION AND INTERNATIONAL CONFERENCE OF FIRE PREVENTION, PROTECTION AND EXTINCTION.—Madison Square Garden, New York City.—A. D. V. Storey, Secretary, 1269 Broadway, New York, N. Y.

American Road Builders' Association.

Arrangements for the American Good Roads Congress and ninth annual convention of the American Road Builders' Association at Cincinnati, O., Dec. 3, 4, 5 and 6, have been practically completed. The plan adopted last year of considering certain specified subjects each day will be adhered to this year, although a somewhat greater subdivision of the main topics has been made. The first session on Tuesday, Dec. 3, will be devoted to the usual addresses of welcome and responses, and a presidential address by Nelson P. Lewis, Chief Engineer of the Board of Estimate and Apportionment of New York City, and President of the American Road Builders' Association. Six of the seven remaining sessions will be devoted to the presentation of technical papers and their discussion, and one session will be used for the annual business meeting of the association.

The tentative program of the technical sessions includes three papers on the organization of highway departments of states, large cities and small cities, respectively. The first will be presented by Major W. W. Crosby, Consulting Engineer of the Maryland State Roads Commission, the second by Wm. H. Connell, Chief Engineer of the Bureau of Highways, Philadelphia, Pa., and the third by a speaker yet to be announced. The development of a plan for a state or county road system will be treated in a paper by an authority yet to be announced, as will also the construction of stone and brick pavements. The building of earth and gravel roads will be treated in a paper by Robert C. Terrell, State Commissioner of Public Roads of Kentucky. The subject of bituminous pavements for cities will be presented in a paper by George W. Till-

son, Consulting Engineer of the Borough of Brooklyn, New York City, and Ellis R. Dutton, Assistant City Engineer of Minneapolis, Minn., will describe the construction of wood block pavements by the day labor plan now in force in that city. Three papers on questions of importance to all engaged in either road or street work will be presented by Col. Wm. D. Sohier, Chairman of the Massachusetts Highway Commission, who will speak on the importance of the traffic census as a preliminary to the planning of road improvements; Clifford Richardson, Consulting Engineer, New York City, who will discuss the economics of road and paving construction, and Arthur S. Lewis, Secretary and Superintendent, Lincoln Park Commission, Chicago, Ill., who will discuss the value and importance of cost data. Contractors will hear the matters with which they are especially concerned discussed by Hugh Murphy, a well-known public works contractor of Omaha, Neb., who will present a paper on the general subject of the problems of a road contractor, and by F. E. Ellis, Manager of the Essex Trap Rock & Construction Co., and a prominent road contractor of Peabody, Mass., whose subject will be plant equipment. It is probable that the technical program will also include two or three other papers dealing with specific work of interest to road builders and with general questions with which they are concerned.

In addition to the day sessions, at least one evening session will probably be held at which illustrated addresses will be made. This, together with other features incidental to the convention, will be announced later.

Alabama Good Roads Association.

The annual convention was held in Birmingham, Ala., Oct. 8-9. The meeting was called to order by John W. O'Neill. Addresses of welcome were made by Judge W. I. Grubb, Job Going, Commissioner James T. Weatherly, John W. Sibley, J. H. Holcombe and John L. Parker. John W. Overton responded for the association. President John Craft, of the association, presided, and Secretary J. A. Rountree read the report. President Craft read the annual address. W. W. Finley, president of the Southern railway, spoke in "The Interest of the Farmers in Highway Improvement." R. E. Spragins spoke of the work of the State Highway Commission, of which he is president. H. G. Barclay read a paper on the "Relations of Railroads to Good Roads." In the afternoon Governor Emmett O'Neal made a brief address. Reports on the progress of a number of State highways were received. "Cooperative Road Building" was discussed by L. B. Musgrave and Capt. Jack Cran-

ford. Among other addresses were the following: "Good Roads from the Viewpoint of Corporations," by G. G. Crawford; "County Road Construction and Maintenance," by Judge W. E. Skeggs; "Practical Road Building," illustrated with lantern slides, by R. E. Toms, U. S. office of public roads; "Road Building in Jefferson County," by J. W. Gwinn, road engineer; "Good Roads from the Viewpoint of the Mail Carrier," by J. M. Riley; "Good Roads from the Viewpoint of the Farmer," by O. P. Ford; "Good Roads from the Viewpoint of the Automobilist," by Judge Daniel Green; "Convicts on the Tennessee-to-the-Gulf Highway and State Roads," by L. A. Whitehead; "Macadam Roads," by W. P. Moore, road engineer, Meridian, Miss.; "Building Roads by Contract vs. County Work," by S. J. Cumming; "Relations of Contractors to Road Engineers in Road Construction," by R. D. Cooke, Selma; "Convicts on the Public Roads," by Judge P. H. Pitts; "Good Roads from the Viewpoint of the Banker," by McLane Tilton; "Importance of Highway Education," by Prof. S. C. Houser, State University; "How Can We Secure More Efficient Supervision of Our Public Highways?" by Prof. G. N. Mitcham; "Road Materials of Alabama," by Prof. Davis, State University; "The Supplementing of Money from County Bond Issues by the State Road Laws," by J. A. Wilkerson; "The Way to Get Roads is to Build Them," by Frank Fester, Foley, Ala.; "The Press and Good Roads," by L. H. Nunnilee, J. J. Smith and E. W. Barrett; and "Industrial Education and Road Building," by N. T. Brown.

International Association of Fire Engineers.

President R. F. Magee has announced the following appointments of officers and committees:

Directors.

F. J. Wagner, Chief, Washington, D. C.

W. B. Cummings, Chief, Atlanta, Ga.

A. B. Ten Eyck, Chief, Hamilton, Ont.

Exhibit Committee.

Harry L. Marston, Chairman, Chief, Brockton, Mass.

Municipal League of Kansas.

The fourth annual convention was held at Salina, Oct. 10-11. Forty-two cities of the first, second and third class were represented, the greatest number that ever attended.

The chief discussion of the session was how the cities could gain from the state more rights and power than they have at present in such matters as the granting of charters. The convention maintained that the power of the state utilities commission should be curtailed. A set of resolutions was passed which are to be presented to the state legislature at its next session. One of the chief resolutions provides that candidates for commissioner should specify in the primaries

as to what commission is desired. This is to provide for a fit candidate for each position on the board.

The convention elected the following officers for the ensuing year: President, Mayor J. Dunkleberger, Newton; vice-president, Commissioner Miller, Topeka; secretary and treasurer, Prof. Richard R. Price, Lawrence; trustees, Mayor C. B. Kirkland, Salina, and City Clerk Metz, Hutchinson.

American Public Health Association.

At the recent convention of the association at Washington, D. C., officers were elected as follows:

President, Dr. Rudolph Herring, New York City; first vice-president, Dr. W. R. Batts, Harrisburg, Pa.; second vice-president, Dr. James Roberts, Hamilton, Canada; third vice-president, Dr. J. E. Monjars, Mexico; secretary, Selskar Gunn, Boston; treasurer, Dr. Livingston Farrand, New York City; executive committee (two years), Dr. J. Y. Porter, Florida; Dr. J. F. Anderson, Washington; Dr. W. G. McKay.

Municipal Health Officers' Section—Chairman, Dr. P. M. Hall, Minneapolis, Minn.; vice-chairman, Dr. John H. Landis, Cincinnati, Ohio; secretary, Dr. E. C. Levy, Richmond, Va.; recorder, Dr. A. S. Fell, Trenton, N. J.; councilors, Dr. J. S. Neff, Philadelphia, Dr. James Roberts, Hamilton, Canada; Dr. Jesus Monjars, Mexico City; Dr. A. C. Dominguez, Havana, Cuba; Dr. C. N. Terry, Jacksonville, Fla.; Dr. G. W. Goler, Rochester, N. Y.

Sociological Section—Chairman, Homer Folks, New York City; vice-chairman, Dr. Hoyt Dearhart, Milwaukee, Wis.; secretary, S. P. Morris, Denver, Colo.

Vital Statistics Section—Chairman, Dr. W. S. Rankin, Raleigh, N. C.; secretary, David D. South, Trenton, N. J.

Sanitary Engineers' Section—Chairman, Col. J. L. Ludlow, Winston-Salem, N. C.; vice-chairman, Robert S. Weston, Boston; secretary, Dr. H. D. Pease, New York City, re-elected; councilors, Dr. Rudolph Hering, New York City; Harrison P. Eddy, Boston; Prof. Morris Knowles, Pittsburgh; Prof. C. E. A. Winslow, New York City, and F. Herbert Snow, Pittsburgh.

International Congress of Hygiene and Demography.

Following are the newly elected officers of the congress, chosen Sept. 24:

President—Dr. Henry P. Walcott, Boston, Mass.

Secretary General—Dr. John S. Fulton, Maryland.

Honorary Presidents—For United States, President William H. Taft; for France, Dr. L. Chantemasse, Paris; Dr. George Evert, Berlin, Germany; for Germany, Dr. August Gartner; Col. William Gorgas, United States; for Norway, Prof. Alex. Holst, Christiania, Norway; for Japan, Prof. S. Kitsato; for Mexico, Dr. Eduardo Li-caega, Mexico City; for Spain, Dr.

Vincente, Madrid, personal representative of King Alfonso; Prof. F. Loeffler, Germany; for Denmark, Prof. T. Mad-sen, Copenhagen; Director Lucien March, general statistician of France; for England, Sir Thomas Oliver, Newcastle, and Dr. Arthur Newsholme, London, England.

Honorary Vice-Presidents—Surgeon-General Rupert Blue, United States Public Health Service, and Dr. Herman S. Briggs, New York City.

The total daily capacity of all the pipe plants of the United States is over 5,600 tons. The annual product for 1911 was probably considerably over 800,000 tons.

American Society of Mechanical Engineers.

At the meeting, November 12, 8:15 p. m., at 29 West 39th street, New York City, Edward B. Passano, Baltimore, Md., will read a paper on "Measuring Efficiency in Manufacturing." Mr. Passano advances a theory that all profit should be treated as an item of expense. All loss, through inefficiency, is a potential or a positive profit to be made in enterprise. A reduction in expense of business increases the actual profit and increases the efficiency. This method keeps constantly before the management the actual value of each unit of production to the organization, and the loss through inefficiency which is a potential or possible profit. When a new method is being tried out, such a system will show the benefits or losses which are expressed in actual profit or loss as the work progresses. It is the intention, after the presentation of the paper of the evening, to throw the meeting open for discussion. The courtesies of the floor will be extended to everyone. An informal dinner will precede the meeting, the cost to be at the discretion of each person attending. The society's rooms will be open all day and those who desire to participate in the dinner will leave at 6:15 p. m.

New York State Police Chiefs.

The annual convention was held in Binghamton, Sept. 29-Oct. 1. Rochester was chosen as the next place of meeting, and the following officers were elected: President, Charles H. Goodrich, Binghamton; vice-president, Jas. J. Long, Little Falls; secretary-treasurer, James L. Hvatt, Albany; member of the board of governors for three years, Charles McCabe, Poughkeepsie.

Idaho Society of Engineers.

A meeting of the society was held October 12, in the rooms of the Boise Commercial Club. I. B. Marcellus made the address of the evening on "Public Service Commissions and the Valuation of Public Utilities." The subject was also discussed by Karl Paine from the legal standpoint and by John P. Condon for the engineers.

The matter of perfecting a system

of recording the re-establishment of old corners was presented by A. N. Kim-mell, and discussed by Godfrey Sperling, and others. R. J. Wood, who was on the wrong side in the recent Weis-er Supreme Court decision, was present and explained "How NOT to reset an obliterated corner." Legislation is needed along this line and also concerning the authority and pay of county surveyors and the society will prob-ably see that presentation of the facts is made to the next Legislature.

Massachusetts Police Association.

The association held its annual meet-ing at North Adams, October 16-17. Among the social features were an automobile trip to Bennington. Forty-five machines were in the line. A banquet was given at the Wellington Hotel, North Adams. The following officers were elected: President, Henry T. Ryan of Haverhill; vice-president, James Cash, deputy marshal of Taun-ton; secretary, Lieutenant James M. Keaney, of Cambridge; treasurer, Christopher H. Chase of Brockton.

Gulph Good Roads Association.

An association with the above name was formed at Mammoth Cave, Ky., October 5, as a result of the good roads conference taken part in by dele-gates from Indiana, Kentucky and Ten-nessee. The purposes of the associa-tion are briefly and comprehensively set forth in the following resolutions unanimously adopted:

"The objects of the organization are to encourage and assist in all ways the building of a continuous highway through the States of Kentucky, Indiana and Tennessee and other States contiguous thereto and to encourage the construction of lateral roadways intersecting this Lakes-to-Gulf highway.

"To arouse and stimulate sentiment for road improvement.

"To strive for wise, equitable and uniform legislation for the building and maintenance of roads.

"To aid in bringing about efficient road administration in the States and counties involving the introduction of skilled supervision and the elimination of politics from the building and man-agement of public roads.

"To seek continuous systematic maintenance of all roads according to the traffic requirements, the payment of road taxes in cash and the adoption of the principle of Federal and State aid and State supervision.

"To advocate a uniformity and corre-lation of road construction so that the important roads of each county shall connect with those of the adjoining counties and the important roads of each State shall connect with those of the adjoining States.

"To strive for the utilization of convict labor on public roads where that course is consistent with the local pol-icy and need, so as to involve the least possible competition with free labor and the utmost public benefit and the healthful, moral and physical devel-opment of the convict."

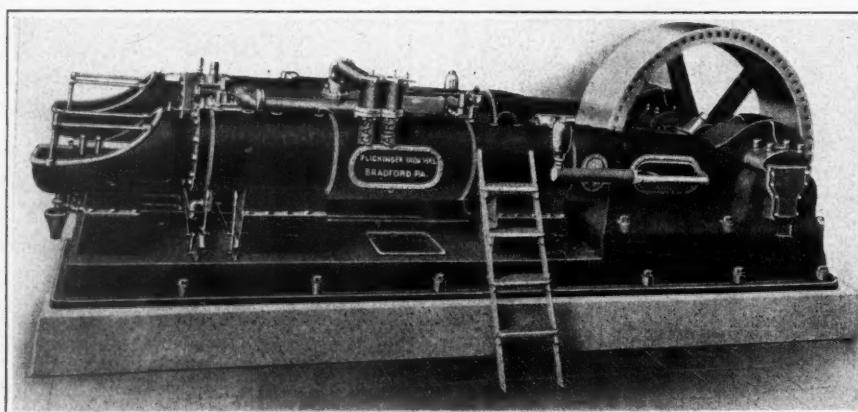
MUNICIPAL APPLIANCES

Twin Tandem Gas Engine.

The Flickinger Iron Works, Inc., Bradford, Pa., manufacture a twin tandem four-cycle single acting gas engine with water cooled floating pistons of 200 horse power and larger. They are described briefly as follows: A sub-base or sole plate is anchored to the foundation independent of all other parts. The main frame and all other parts are bolted to the sub-base, independent of the main anchor bolts. Bed plates are of the bored guide enclosed type, fitted with vertical crossheads with adjustable shoes, top and

The lay shaft runs in self oiling boxes and is driven by spiral gears direct from the main shaft. The valves are operated by cams through bell cranks which carry case hardened rollers bushed with bronze. Governors are a new design, of the centrifugal ball type with scale point bearings. The regulation is claimed to be remarkable. Mixing is accomplished by means of a pair of proportioning valves.

The air starting mechanism is novel. It is only necessary to turn on the air and the two cylinders are thrown into two-cycle action, automatically, by the



FLICKINGER TWIN TANDEM FOUR-CYCLE GAS ENGINE.

bottom. The bed plates are finished on the bottom and doweled and bolted to the sub-base. The rear end is finished to receive a distance piece between the bed and the forward cylinder. A stuffing box and packing prevent the crank oil from getting into the forward cylinder. Cylinders are symmetrical and cast in one piece with pedestals to rest on sub-base and held by gibbs to provide for expansion and contraction. The cylinders may be slid back on the sub-base. Center distance pieces are provided with slide-ways for the intermediate crossheads and are open at each side. These distance pieces also contain the water jacketed cylinder head and packing chambers. Tail pieces contain the head for the rear cylinder.

Pistons are cast in one piece and are forced on the rods against a taper collar and are held by a nut screwed in flush with face of piston. The cooling water flows around the entire surface of the piston. Piston rods are machined from solid crucible steel forgings in two sections which are drilled from each end leaving a short section solid where the piston is located. Two holes are drilled in the rod to admit and discharge the cooling water. Metallic packing is used in all piston rod boxes that are under pressure. Valves are all vertical poppet with cast iron heads securely fastened to steel stems. The intake valves are in separate cages from the other valves and the exhaust valves are seated in the valve box which is water jacketed.

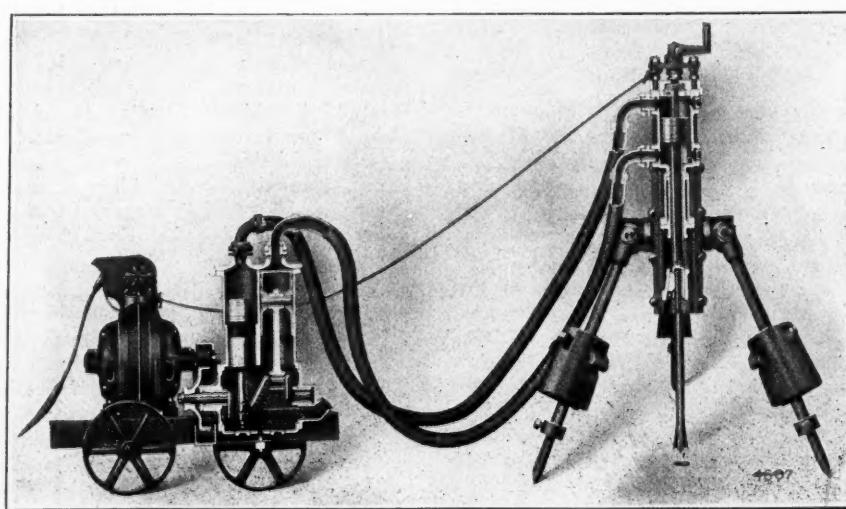
action of the air and are also thrown out when the air is shut off. The levers for starting are located near the throttle so that the machine may be started from one position of the operator. A lever for advancing or retarding the spark is located at the same place. Crankshafts are of the center crank type. Flywheels are made in halves. Splash oiling is employed for the cranks, connecting rods and main journals. The cooling water for cylinders enters the water jacketed exhaust pipes, thence to the valve boxes and from there to the cylinders. The admission of warm water to the cylinders is an advantage.

Temple-Ingersoll Electric-Air Rock Drills.

The Ingersoll-Rand Company, 11 Broadway, New York, manufactures the Temple-Ingersoll electric-air rock drill which it is claimed uses only about one-fourth the horse-power required with the usual air or steam drill of the same work capacity. The question of whether this machine or the standard air drill should be used in a given case is a question of fuel cost, operating economy, availability of electric power and the distribution of the work. The drill is of special value in the isolated quarry or contract where the high cost of fuel forms a serious handicap to operations. To the small operator, because of the lower installation cost, no compressor and boiler plant being required. For winter operations in quarries where the use of the ordinary air or steam drill would be difficult owing to the cold.

The electric-air drill is driven by pulsations of compressed air created by a pulsator actuated by a standard electric motor. The air is never exhausted, but is simply used over and over again, playing back and forth in a closed circuit. The drill is very simple, a cylinder containing a moving piston and rotation device, with no valves, chest, buffers, springs, side rods or pawls. The cylinder is larger but the piston is shorter, making the weight of the drill unit about the same as, or even less, than that of the corresponding air drill. The pulsator requires no intake or discharge valves or water jackets. It is geared to a motor, either direct or alternating current, and mounted on a wheel truck for easy handling. Two short lengths of hose connect pulsator and drill, each hose acting alternately as supply and exhaust.

The air in the closed system which acts simply as a transmitting agent between the piston of the pulsator and the piston of the drill is under a low pressure. Some leakage is inevitable. This is provided for by a compensating valve on the pulsator, which is



ELECTRIC-AIR ROCK DRILL.

adjusted to automatically maintain the requisite pressure in the circuit. However, the wearing surfaces throughout the system are so large and the lubrication is so perfect that leakage is very slight, providing the cup leather of the drill is occasionally renewed.

The electric air drill is sold under guarantee to do as much work as a standard air drill of equivalent rated capacity with 80 pounds air pressure. The stroke is equal to or even greater than that of the air-driven rock drill of corresponding capacity. The peculiar nature of its return stroke and the quick action give it excellent "mudding qualities." The length of stroke is varied simply by cranking forward in the shell. Both stroke and force of blow may be adjusted by the same means for fast drilling under any circumstances. If a hole does "mud up" or form a mud collar in bad rock, the machine can be backed out without injury while running, thus clearing itself quickly. When the ordinary rock drill sticks, it simply pulls back with a steady pressure and the steel must be sledged until it loosens. If the electric-air drill momentarily sticks it receives more than 400 impulses a minute which tend to free it.

In the construction of this drill all delicate parts, it is claimed, have been eliminated. A standard motor is used, equal to the heaviest momentary overload, mounted on a truck entirely free from the drill. In cushioning, the piston does not normally strike either front or back head. The system of lubrication is automatic and complete, the splash method being employed. The closed crank case of the pulsator is partially filled with oil into which the cranks in their rotation drip and splash the lubricant into the cylinder boxes and over all pulsator bearings. While most of the oil drains back to the crank chamber, a portion is atomized and carried through with the air into the drill.

The current used for these drills is usually 220 volts, direct or alternating, though other currents may be used.

Sterling Destructor.

The Griscom-Russell Company, 90 West st., New York City, are the American agents for the destructor designed by Hughes and Sterling, London, England. The destructor unit comprises a furnace consisting of one or more grates; a combustion chamber; a steam boiler; a regenerator or continuous air-heater; a by-pass and a forced draft system.

The grate area of the furnace may be 20 to 100 sq. ft. according to the desired destroying capacity. A combustion rate averaging 60 to 68 lbs. of material per hour is assumed as standard, and the furnace rated accordingly; thus a unit of two grates of 50 sq. ft. in all, burns 1½ tons per hour.

At one end of the continuous grate, whether in single or double arrangement, is placed a chamber of the full

height of the furnace and of a width proportioned to the volume of gases released by the incineration of the waste. As the grates are alternately charged and clinkered, the temperature of this chamber is maintained, the gases are intimately mixed, and the inflammable parts destroyed before they are passed to the boiler.

The addition of a steam boiler, usually of the water-tube type, insures the production of power greatly in excess of that required for the operation of the plant, and thus provides a revenue for its use or sale. If the utilization of steam power is not practicable, or not desired, the boiler is reduced in size.

In order to increase the temperature of combustion, a highly heated air blast is supplied; the air heated by passing it between the tubes of a regenerator placed in the flue leading from the boiler. In passing through these tubes, the air blast is heated to 300° or 400°. The regenerator consists of iron or steel tubes fixed in tube plates. It is set into the flue so as to be readily accessible for cleaning or repairing, through removable tiles.

In most installations a by-pass direct from the combustion chamber to the chimney is an advantage of considerable value. It provides for direct combustion without reference to the boiler, also for the passage of a part of the volume of gases that might be too great for the boiler, and allows the operation of the destructor without reference to the boiler. With a suitable construction and arrangement of by-passes and dampers, there are three separate ways in which the plant can be run: (a) As a complete plant for its normal purpose of a destructor and steam raiser. (b) As a destructor only without reference to the boiler, and (c) As a steam plant only, when the

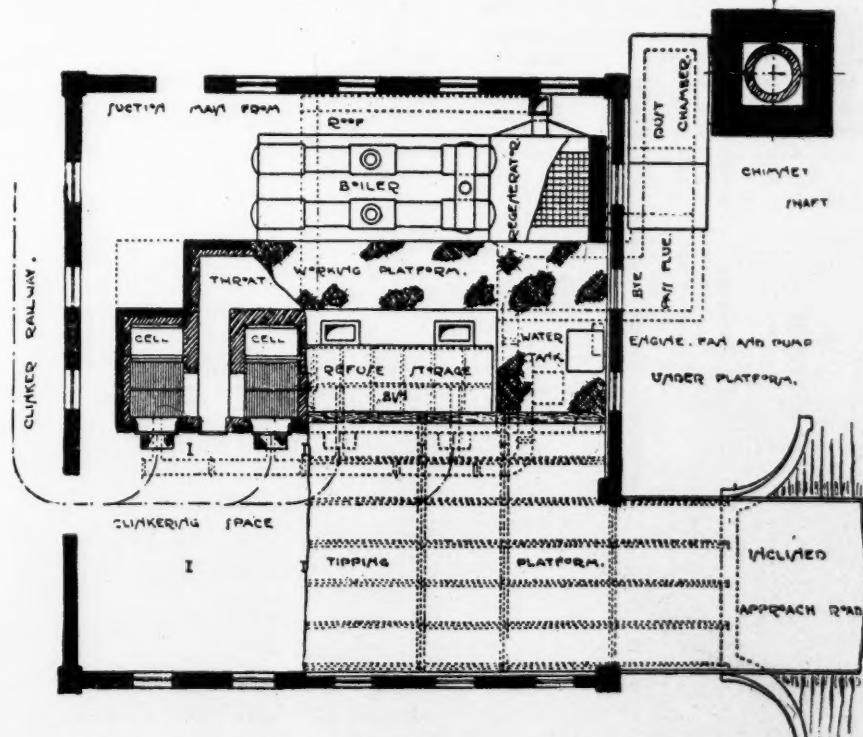
boiler is run separately from the destructor by coal firing.

The preferred method of producing the blast is by a steel plate blower, but as an alternative, the air may be moved by steam jets. The air is led from the regenerator through the blast pipes terminating in distributors under each grate of the furnace. Valves are provided by which the blast pressure may be varied independently in any cell.

Acheson-Graphite Lubricants.

The International Acheson Graphite Company, Niagara Falls, N. Y., manufacture a graphite which is practically chemically pure. Acheson-Graphite is made in an electric furnace at a temperature of 7,500° F., which vaporizes every known element except graphite. All other graphite is mined and consequently is likely to contain impurities such as iron, silica, alumina and lime. The grades of Acheson-Graphite recommended for lubrication are all extremely fine, unctuous, soft, pure powders. When applied to metal surfaces, either with or without a carrier, it fills in all the irregularities, building up the hollows and burying the minute metal points until a high polish or veneer of graphite is imparted to the surface. Unlike a film of grease or oil, this veneer of graphite will not break down and permit the metals to cut. Much of this great value is attributed to the fact that Acheson-Graphite is not flaky, crystalline or hard but soft and unctuous, so that under pressure the graphite moves within itself like a film of oil. In this way it reduces friction and prevents the parts from wearing away.

Three preparations of this material are made, named to indicate the carrier in which the graphite is suspended.



PLAN OF STERLING DESTRUCTOR.

These preparations are Gredag, Oildag and Aquadag.

Gredag is blended with a high grade grease. The blending of the ingredients is claimed to be much superior to a hand mixed lubricant and to give much better results. A high temperature or low temperature hardly alters the consistency, it is said. This material is put up in a number of grades using greases varying from semi-fluid to quite hard. Semi-fluid is recommended for enclosed transmission of automobiles. Soft, for general automobile use. The heavier grades, for cup use.

Oildag and Aquadag contain deflocculated graphite. In this form it remains suspended in oil or water. In this condition the graphite is believed to be subdivided into separate molecules—this seems to be the only explanation for the fact that it remains indefinitely in suspension. No other lubricants, it is said, contain graphite in this form.

Oildag is a mixture of deflocculated graphite and mineral oil. As a gas engine lubricant it is claimed that Oildag has been found to make possible a reduction of 50 per cent. and more in the oil consumption, and also to give an increase in power available by producing increased compression. This is because the veneer of graphite renders the surfaces highly polished and produces a pit between the piston rings and cylinders which, it is claimed, cannot be obtained in any other way. Dr. Acheson, the inventor of the material, states that he has run a 1908 Packard "30" over 15,000 miles, with an oil consumption of Oildag of one gallon per 750 miles as against the estimate of the Packard company of one gallon for every 200 miles. There is an advantage in decreasing the oil consumption because less free carbon is thereby produced, and the troubles, such as smoke and clogging, arising from its decomposition greatly reduced.

Aquadag is a deflocculated graphite mixed with water. This makes it an entirely new lubricant. The manufacturers believe it will slowly but surely gain high favor.

INDUSTRIAL NEWS

Cast Iron Pipe.—Chicago. No lettings of importance are pending. Routine orders of a miscellaneous character aggregate a considerable tonnage and the market is decidedly firm on the strength of pig iron prices. Quotations: 4-inch, \$30; 6 to 12-inch, \$28; 16-inch and up, \$27. Birmingham. Orders, output and prices continue satisfactory to the manufacturers. Scarcity of cars is causing some delay in shipments. Quotations: 4-inch, \$25; 6-inch, \$23. New York. The United States Cast Iron Pipe and Foundry Company will furnish 4,000 tons to Newark, N. J., at prices ranging from \$22.40 to \$23.25. Quotations: 6-inch, car loads, \$24.50 to \$25.

Lead.—Market is easy and dull. Prices have declined in London. Quotations: New York, 5.05c.; St. Louis, 4.90c.

Amiesite.—The illustration shows the Amiesite roadway leading from Harts Corners on Central avenue to Hartsdale station, Westchester County, New York, laid by the Charles T. Eastburn company, Yardley, Pa. The work was resurfacing old macadam. The roadbed was scarified and reshaped. A course of Amiesite, made of $1\frac{1}{2}$ -inch to $\frac{1}{2}$ -inch trap rock was spread over it to a depth of three inches. After rolling a filler course of $\frac{1}{4}$ to $\frac{1}{2}$ -inch stone Amiesite mixture was applied and rolled. A light coating of sharp sand was scattered over the surface. The road is now in excellent condition. The traffic is heavy, including many automobiles, and in addition, this year, construction work on a railroad has added to the ordinary traffic that of many heavily loaded trucks.

The Amiesite mixture is a composition of trap rock, $1\frac{1}{2}$ -inch maximum size, coated by a process requiring no heating with a high grade asphalt cement. This material forms the first coat. For a second course either $\frac{1}{2}$ or $\frac{1}{4}$ -inch stone may be used, treated in the same manner, though richer in bitumen.

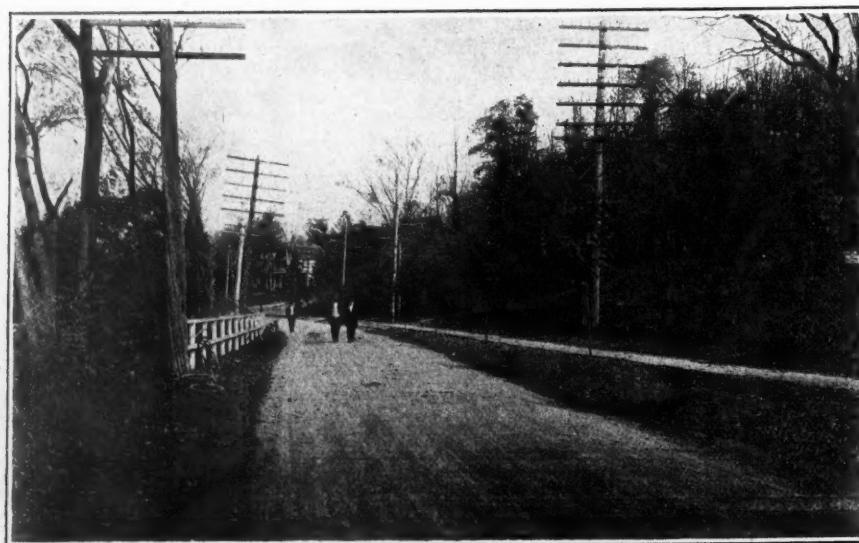
The mixing process is claimed to saponify the asphalt cement forming a

lasting chemical binder, which it is claimed will not evaporate, oxidize, or crystallize, but retain its adhesive qualities indefinitely. Moreover, it is claimed that certain soluble salts contained in some asphalts are by the Amiesite process neutralized so that they do not absorb water. These salts are said to be a common cause of the disintegration of asphalts which contain them. The surface of Amiesite is claimed to be waterproof, a property which all bituminous macadam does not have. The method by which the material is handled has certain advantages. It is mixed, generally at the crushing plant, where proper proportions of the ingredients is easily secured. From the plant it may be shipped a considerable distance by rail or otherwise to the scene of the work. In this way a single mixing plant may serve a large territory and the cost of efficient supervision is minimized.

Solid Rubber Truck Tires.—A topic of natural interest to all owners and operators of motor-driven commercial vehicles is the discussion of methods to prevent the wear and tear of solid rubber truck tires. This part of the equipment is admittedly the most serious item in the cost of truck up-keep, according to C. W. Martin, sales manager of The Goodyear Tire & Rubber Co., Akron, Ohio, who has prepared the following statement. There are many insignificant details in the operation and care of a motor truck that have an important bearing upon the life and service of its rubber tires.

Natural and Ordinary Wear.—Natural or ordinary wear, under normal conditions, causing abrasion, is attributable principally to tractive effort, starting and stopping or skidding. When these elements are not attended by others which will be described later on, a solid rubber tire can be expected to give the maximum of service and to wear out legitimately. Undue abrasion may be caused by wheels being out of alignment, resulting in a tire wearing down smoothly and prematurely, thus, more than likely, causing an impression with the truck owner that the tire is not all that it should be in the matter of quality and workmanship. Disalignment sufficient to produce this effect in at least some degree may be so slight as to be unnoticeable in the absence of special attention, asserts Mr. Martin. Wheels out of alignment are very frequently found, particularly front wheels. Usually these result from striking curb stones or any other obstructions glancing blows, thus causing bent axles, wrenching steering knuckles, or dished wheels. The wear is the same as would be obtained by holding the tread of the tire on a swiftly moving grind stone and revolving it slowly. Turning the front wheels by means of the steering apparatus when the truck is not in motion also has its bad effect.

Disalignment may be detected by measuring the distance between rims of the two front or two rear wheels at the extreme fore and aft points,



AN AMIESITE ROAD NEAR NEW YORK CITY.

care being exercised to see that the front wheels, when measuring them, are pointing straight ahead or parallel with the body of the truck. The distance at fore and aft points will be found to be the same if the wheels are in perfect alignment.

Cutting.—Traveling over exceedingly rough pavements and sharp stones, such as are found on newly macadamized roads, produces cuts into which sand and grit work, slowly enlarging the gap and eventually causing the destruction of a solid rubber truck tire. Continual running in car tracks invariably results in the destruction of a truck tire, as the edge of the tire, or the very small portion which runs on the rail, is carrying the load intended for the whole tire. Also a shearing effect is thus produced which is very injurious to the tire's fastening. Cutting may also be caused by careless driving on streets in normal condition, or by careful driving combined with overloading, on bad streets.

Disintegration.—This condition may be due to the tire being allowed to stand in oil in the garage. Oil has a chemical action upon rubber which is extremely injurious.

Proper Application.—In this day of increasing popularity of Demountable tires and standard wheels as adopted by the Society of Automobile Engineers it is important that wheels be of proper dimensions and that all bolts be thoroughly tightened so as to prevent circumferential movement of the tire on the wheel.

Overloading.—A tire will fail to stand up under overloading, which strains the fastening and rashes the tread, causing bruises and chafing. Speeding virtually has the same results as overloading, producing shocks when riding over obstacles of various kinds, which bruise and cut the rubber.

The Goodyear Tire & Rubber Co., after a thorough and scientific analysis of all conditions and requirements by their experimental engineering department, have adopted and recommended the graduated table of carrying weights given below.

It will be noted that tires are rated according to their diameters as well as their cross-sectional size; and speed has been given proper consideration. A careful observation of the foregoing

will have its effect in reducing truck tire mile cost.

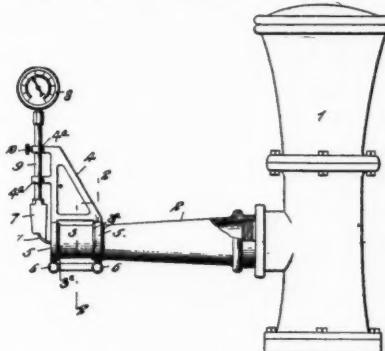
Crushing Plant.—The Granite Rock Company, Watsonville, Cal., is doubling its plant by the installation of a No. 7½ McCully crusher and the largest set of rolls on the coast, with screens and conveyors.

Cast Iron Pipe.—The McWane Pipe Works, Lynchburg, Va., will build a pipe foundry at Anniston, Ala. The main building will be of steel construction, 235x115 ft. Electric motors, cupolas and a blower will be purchased.

Concrete Mixer.—The Chain Belt Company, 736 Park street, Milwaukee, Wis., has let contracts through Leenhouts & Guthrie, architects, for a concrete, brick and steel addition to its factory.

PATENT CLAIMS

1,041,470. DEVICE FOR MEASURING THE FLOW OF WATER. John A. Hiller, Cincinnati, Ohio, assignor to National Water Main Cleaning Co., New York, N. Y., a corporation of Maine. Serial No. 539,327. In a device of the character described, the



combination with a fluid conduit, of a Pitot tube operatively associated therewith, and means whereby said Pitot tube may be adjusted circumferentially in relation to said conduit and retained in such adjusted position.

1,037,836. CEMENT COMPOUND AND PROCESS FOR MAKING THE SAME. Eli Roy, Lewiston, Me. Filed June 3, 1910. Serial No. 564,873.

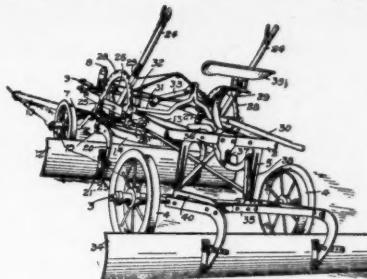
The process of making cement consisting of boiling clay with soda ash in water to thoroughly saturate the clay with the soda ash, independent of other material to be subsequently added, and after such boiling operation adding sand, mixing the mass and comminuting.

1,041,387. GRADING MACHINE. Raymond Waterman, Minneapolis, Minn. Serial No. 601,643.

A grading machine comprising a frame having carrying wheels, a ring, a scraper blade

	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	M.P.H.
2-inch singles.....	450	475	500	525	550	575	20
2½-inch singles.....	670	710	750	790	830	870	20
3-inch singles.....	900	950	1,000	1,050	1,100	1,150	20
3½-inch singles.....	1,130	1,190	1,250	1,310	1,370	1,430	18
4-inch singles.....	1,350	1,425	1,500	1,575	1,600	1,725	16
5-inch singles.....	1,800	1,900	2,000	2,100	2,200	2,300	14
6-inch singles.....	2,250	2,375	2,500	2,625	2,750	2,875	12
7-inch singles.....	2,700	2,850	3,000	3,150	3,300	3,450	10
2-inch dual.....	1,125	1,188	1,250	1,312	1,375	1,438	18
2½-inch dual.....	1,675	1,775	1,875	1,975	2,075	2,175	18
3-inch dual.....	2,250	2,375	2,500	2,625	2,750	2,875	16
3½-inch dual.....	2,825	2,975	3,125	3,275	3,425	3,575	14
4-inch dual.....	3,375	3,560	3,750	3,940	4,125	4,310	13
5-inch dual.....	4,500	4,750	5,000	5,250	5,500	5,750	12
6-inch dual.....	5,625	5,940	6,250	6,565	6,875	7,190	10
7-inch dual.....	6,750	7,125	7,500	7,875	8,250	8,625	10

supported thereby, a drag-bar having a forked rear portion having guides to receive said ring, a transverse ball having its ends connected to the fork of said drag-bar at the rear portion thereof and a crank shaft journaled in said frame and having an operating



lever and a crank at its middle portion pivotally connected with said bail, substantially as described.

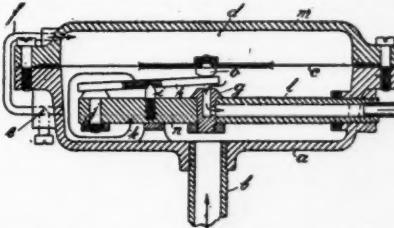
1,041,578. ART OF PAVING. John A. Bell, George R. Wilton and George P. Griffith, Los Angeles, Cal. Serial No. 494,127. In a pavement, a porous block impregnated with a filler having a relatively low melting



point, and a plastic body adapted to coalesce with the filler and applied at a higher temperature than the melting point of the filler, whereby the plastic body and porous block are bonded together.

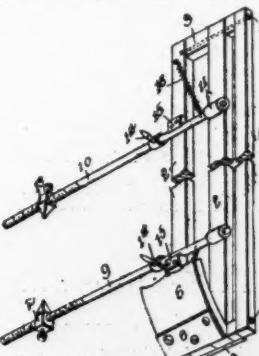
1,041,038. DEVICE FOR LIGHTING AND EXTINGUISHING GAS-FLAMES FROM A DISTANT POINT. Gustaf Dalen, Stockholm, Sweden, assignor to Aktiebolaget Gasaccumulator, Stockholm, Sweden. Serial No. 381,490.

A device for lighting and extinguishing a gas flame from a distant point, comprising a casing, a diaphragm therein dividing the casing into two compartments, a gas supply pipe entering one of said compartments, a valve for controlling the flow of gas from the gas



supply pipe to the burner, means additional to the diaphragm for opening and closing the valve when a difference of pressure is prevailing between the compartments, and means for gradually transmitting the gas pressure from one compartment to the other, the latter means being independent from the supply pipe to the burner.

1,041,320. TOOL FOR MARKING CEMENT PAVEMENTS. Loren W. McIntyre, Portland Ore. Serial No. 643,021. A support for jointing concrete pavements



comprising a longitudinally extended resilient base, adapted to rest at a point intermediate its ends upon the side forms of a concrete sidewalk, and a bowed member supported on and engaging at its ends with the ends of the base, the intermediate portion of the bowed member being disconnected from the base.

THE WEEK'S CONTRACT NEWS

Relating to Municipal and Public Work—Street Improvements—Paving, Road Making, Cleaning and Sprinkling—
Sewerage, Water Supply and Public Lighting—Fire Equipment and Supplies—Bridges and Concrete Work—
Sanitation, Garbage and Waste Disposal—Police, Parks and Miscellaneous—Proposals and Awards.

To be of value this matter must be printed in the number immediately following its receipt, which makes it impossible for us to verify it all. Our sources of information are believed to be reliable, but we cannot guarantee the correctness of all items. Parties in charge of proposed work are requested to send us information concerning it as early as possible; also correction of any errors discovered.

BIDS ASKED FOR

STATE	CITY	REC'D UNTIL	NATURE OF WORK	ADDRESS INQUIRIES TO
STREETS AND ROADS				
Ohio.....Cleveland.....		Nov. 2, 11 a.m....	Grading road	J. E. Goldenbogen, Co. Clerk.
Dist. of Col.....Washington.....		Nov. 2.....	Constrn. roads at Naval Hosp. cost \$8,450.	Navy Dept.
Indiana.....Indianapolis.....		Nov. 2, 10 a.m....	Furn. 32 carloads crushed stone	W. T. Patten, Co. Aud.
Ohio.....Columbus.....		Nov. 2, 2 p.m....	Constrn. 1.05 miles macadam in Jackson..	J. R. Marker, St. Hwy Comr.
Mississippi.....Pascagoula.....		Nov. 4.....	Constrn. 18 m. dirt road, 2 m. shell road..	W. W. Grinstead, Sec. Gautier, Miss.
Indiana.....Brownstown.....		Nov. 4, 1.30 p.m....	Constrn. gravel road	H. W. Wacker, Co. Aud.
Indiana.....Tipton.....		Nov. 4, 10.30 a.m....	Imp. several roads	J. H. Traubarger, Co. Aud.
Illinois.....Chicago.....		Nov. 4, 11 a.m....	Constrn. cement sidewalks	G. A. Shilling, Pres.
Kansas.....Kansas City.....		Nov. 4.....	Constrn. macadam	County Commissioners.
Alabama.....Geneva.....		Nov. 4, noon.....	Constrn. 5½ miles sand clay road	W. S. Keller, St. Hwy Engr.
Indiana.....Richmond.....		Nov. 4.....	Constrn. gravel roads, Wayne Co	H. Guthrie, Co. Aud.
Indiana.....Richmond.....		Nov. 4.....	Constrn. gravel roads, Huntington Co	L. F. Bowman, Co. Aud.
Indiana.....Shelbyville.....		Nov. 4, 11 a.m....	Constrn. roads in Moral Township	F. W. Fabel, Co. Aud.
Indiana.....Hartford City.....		Nov. 4, 2 p.m....	Constrn. macadam roads	J. Cronin, Jr., Co. Aud.
Alabama.....Luverene.....		Nov. 4, noon.....	Constrn. 6 miles sand clay road	W. S. Keller, St. Hwy Engr.
Pennsylvania.....Altoona.....		Nov. 4, 5 p.m....	Constrn. brick walk and curbing	C. M. Piper, Sec.
California.....Oakland.....		Nov. 4, 11 a.m....	Constrn. granite, asphalt & basalt pave..	F. R. Thompson, City Clerk.
Indiana.....Bedford.....		Nov. 5, 1 p.m....	Constrn. gravel and macadam roads	E. W. Edwards, Co. Aud.
Florida.....Tampa.....		Nov. 5, 2 p.m....	Furn. 50,000 lin. ft. granite curbing and 350 6-ft. radius corners	D. B. McKay, Ch. Bd. Pub. Wks.
Kentucky.....Pineville.....		Nov. 6, 11 a.m....	Constrn. roads	B. A. Fusion, Co. Judge.
Indiana.....Corydon.....		Nov. 6, 2 p.m....	Constrn. 2 gravel roads	Wm. Taylor, Co. Aud.
Wisconsin.....Eagle River.....		Nov. 6.....	Constrn. several sections of highway	Bd. of Supervisors.
New York.....Schenectady.....		Nov. 6, 2.30 p.m....	Constrn. concrete curb	F. E. Johnson, Sec. Bd. Contr.
Florida.....Jacksonville.....		Nov. 6, 10 a.m....	Furn. shells for road	G. L. Barnard, Co. Engr.
New York.....Brooklyn.....		Nov. 6, 11 a.m....	Constrn. sidewalks, asphalt pave., furn. 300 tons refined asphalt, &c.	A. E. Stears, Boro. Pres.
Indiana.....Marion.....		Nov. 6, 2 p.m....	Constrn. gravel roads	E. H. Kimball, Co. Aud.
Indiana.....Logansport.....		Nov. 6, 10 a.m....	Constrn. 3 macadam roads	J. E. Wallace, Co. Aud.
Indiana.....Crawfordsville.....		Nov. 6.....	Constrn. 10 macadam and gravel roads... Constrn. asphalt & wood block pavement.	D. Engle, Co. Aud.
Louisiana.....Lake Charles.....		Nov. 6.....	Constrn. gravel roads	City Clk.
Indiana.....Lafayette.....		Nov. 6, 10 a.m....	Constrn. 4 miles gravel	G. W. Baxter, Aud.
Alabama.....Vernon.....		Nov. 7, 11 a.m....	Constrn. 2 gravel roads	W. S. Keller, St. Hwy Comr.
Indiana.....Crown Point.....		Nov. 7.....	Constrn. 2 gravel roads	C. A. Johnson, Co. Aud.
Indiana.....Evansville.....		Nov. 7, 10 a.m....	Constrn. road	County Commissioners.
New Jersey.....Jersey City.....		Nov. 7, 3 p.m....	Imp. plank road	W. O'Mara, Co. Clerk.
Indiana.....Tipton.....		Nov. 7, 10.30 a.m....	Constrn. gravel road	J. H. Tranbarger, Co. Aud.
Indiana.....Peru.....		Nov. 7, noon.....	Constrn. gravel roads	F. K. Elheny, Co. Aud.
New York.....New York.....		Nov. 7, 3 p.m....	Constrn. asphalt pavement	C. B. Stover, Pr. Park Com.
New York.....Long Island City.....		Nov. 8, 11 a.m....	Constrn. imp. granite pavements	M. E. Connolly, Boro. Pres.
Washington.....Coupeville.....		Nov. 8.....	Constrn. road	H. S. Wanamaker, Co. Aud.
Mississippi.....West Point.....		Nov. 8, 2 p.m....	Constrn. 9 miles highway	Supervisors Dist. No. 1.
Indiana.....Logansport.....		Nov. 8, 10 a.m....	Constrn. road	J. E. Wallace, Co. Aud.
Indiana.....Columbus.....		Nov. 9, 9 a.m....	Constrn. macadam road	P. J. Slater, Co. Aud.
Illinois.....Lawrenceville.....		Nov. 11 (re-ad)....	Constrn. 1 mile road	Town Clerk.
Washington.....Stevenson.....		Nov. 11, noon....	Constrn. 4 miles wood and bit. pave..	County Comrs.
Texas.....Houston.....		Nov. 11, noon....	Constrn. gravel road	D. C. Smith, Sec.
Alabama.....Marion.....		Nov. 11.....	Grading 4 miles road, cost \$8,000	G. C. Scales, Co. Engr.
Ohio.....London.....		Nov. 11, noon....	Constrn. gravel road	H. M. Chaney, Co. Aud.
Indiana.....Indianapolis.....		Nov. 12, 10 a.m....	Constrn. gravel roads	W. T. Patten, Co. Aud.
Ohio.....Canton.....		Nov. 13, 10 a.m....	Imp. 2 streets	J. H. McConnell, Co. Aud.
New Jersey.....Freehold.....		Nov. 13, 11 a.m....	Constrn. gravel road	J. M. Corliss, Dir. Freeholders.
New Jersey.....Roselle Park.....		Nov. 15, 8 p.m....	Constrn. 14,000 yds. bituminous pavement	Mayor.
California.....Fresno.....		Nov. 15.....	Constrn. oil macadam, cost \$9,000	Co. Supervisors.
Indiana.....Fort Wayne.....		Nov. 15, 3 p.m....	Constrn. cement s'walks, plant. trees, &c.	C. J. Steiss, Sec. Park Comrs.
Texas.....Gonzales.....		Nov. 15, 10 a.m....	Constrn. 75 miles gravel or clay roads... Constrn. 1.09 miles macad. in Bloom Twp.	W. B. Green, Co. Judge.
Ohio.....Columbus.....		Nov. 16, 10 a.m....	Constrn. 1 mile brick in Perry Twp....	J. R. Marker, St. Hwy Comr.
New York.....Fort Slocum.....		Nov. 18.....	Constrn. roads, walks and gutters	J. C. McArthur, Capt. Q. M.
Missouri.....Webb City.....		Nov. 18.....	Constrn. 2,000 ft. cement curb & gutter..	E. W. Robinson, City Engr.
Ohio.....Springfield.....		Nov. 18.....	Constrn. roads	H. V. Long, Ch. Freeholders.
Pennsylvania.....Harrisburg.....		Nov. 19, 10 a.m....	Constrn. 4,500 lin. ft. brick paving	E. M. Bigelow, St. Hwy Comr.
Ohio.....Cleveland.....		Nov. 19, noon....	Improving road and constrn. sidewalks..	H. H. Canfield, Clerk.
Ohio.....Cleveland.....		Nov. 20, 11 a.m....	Improving road	J. F. Goldenbogen, Clk. Co. Bd.
Indiana.....Shelbyville.....		Nov. 21.....	Constrn. 5,800 yds. gravel	F. W. Fagel, Co. Aud.
Kansas.....Topeka.....		Nov. 22.....	Constrn. 2 brk. & one concrete pavement	Co. Comrs.
New York.....New York.....		Nov. 23, 11 a.m....	Constrn. granite block paving	H. R. Stanford, Chief Clerk, Washington, D. C. Stoney Amick, City Engr.
Kentucky.....Pikeville.....		Dec. 9.....	Constrn. 25,000 yds. paving	G. L. Baltzell, City Clerk.
Florida.....Fernandina.....		Dec. 18, 3 p.m....	Furn. material for 11,000 sq. yds. brick pavement	
SEWERAGE				
Indiana.....Terre Haute.....		Nov. 4.....	Constrn. sewers, manholes, catch basins, &c., estimated cost \$17,000	R. M. Burns, City Engr.
Illinois.....Chicago.....		Nov. 4, 11 a.m....	Constrn. brick sewer	G. A. Shilling, Pr. B. L. I.
New Jersey.....Plainfield.....		Nov. 4.....	Constrn. 28,000 ft. 8 to 24-in. pipe sewers..	City Council.
Mississippi.....Vicksburg.....		Nov. 5, noon....	Furn. 2 carloads cast iron and corrugated iron sewer pipes	J. D. Laughlin, Clerk Suvs.
Missouri.....Joplin.....		Nov. 5.....	Constrn. sewers, cost \$6,500	C. B. Anderson, City Engr.
Connecticut.....Waterbury.....		Nov. 5, 8 p.m....	Constrn. sewers and appurtenances	R. A. Cairns, City Engr.
New York.....Harrison.....		Nov. 6.....	Constrn. sewerage system	L. S. Schrenkeisen, Chrmn.
Maryland.....Baltimore.....		Nov. 6.....	Constrn. lateral sewers	Board of Awards.
Pennsylvania.....Pittsburgh.....		Nov. 8, 10 a.m....	Constrn. 3,285 ft. 15 to 36-in. t.c. pipe, also 48-in. brick sewer	J. G. Armstrong, Dir. Pub. Wks.
New York.....Long Island City..		Nov. 8, 11 a.m....	Constrn. number of sewers	M. E. Connolly, Boro. Pres.

BIDS ASKED FOR

STATE	CITY	REC'D UNTIL	NATURE OF WORK	ADDRESS INQUIRIES TO
New York	Syracuse	Nov. 11	Constrn. 48-in. sewer	Sewerage Board.
Texas	Houston	Nov. 11, noon	Constrn. 28,000 ft. of 8 to 42-in. pipe sewer	D. C. Smith, City Sec.
New Jersey	Newark	Nov. 12, 2 p.m.	Constrn. Section 10 Passaic Valley sewer	J. S. Gibson, Clerk Comr.
Texas	Waco	Nov. 12, 10 a.m.	Constrn. concrete storm sewers	J. G. Mackey, Mayor.
Alabama	Florence	Nov. 18, 7:30 p.m.	Constrn. storm water sewer	J. B. White, City Clerk.
Texas	San Benito	Nov. 18, 8 p.m.	Constrn. about 3,300 ft. 8 to 18-in. pipe & two disposal plants	J. M. Breen, Mayor.
Florida	Palm Beach	Nov. 19	Constrn. 2,200 ft. concrete sewer pipe & septic tank	A. N. Lopez, City Clk.
Florida	W. Palm Beach	Nov. 19	Constrn. 22,000 ft. concrete sewer pipe and septic tank	A. M. Lopez, City Clerk.
Iowa	Tipton	Jan. 15	Constrn. sewers	P. D. Ketelsen, City Clerk.

WATER SUPPLY

Nebraska	Lincoln	Nov. 2, 2 p.m.	Constrn. addition to pump. sta., cost \$3,300.	R. C. Ozman, City Clerk.
New Jersey	Dover	Nov. 2	Furn. and installing 150 h.p. boiler and pump	J. V. Baker, Clerk.
Georgia	Waycross	Nov. 5	Constrn. artesian well	City Clerk.
Maryland	Baltimore	Nov. 6, 11 a.m.	Constrn. 2 reservoirs	J. H. Preston, Mayor.
New Jersey	Perth Amboy	Nov. 6, 8:30 p.m.	Constrn. 24-in. water main	S. J. Mason, Engr. Bd. Wat. Sup.
Ohio	Youngstown	Nov. 6, noon	Furn. and installing pump	W. H. McMillin, Clerk.
Oregon	Fort Stevens	Nov. 7, 11 a.m.	Constrn. 2 cisterns	Lt. A. Norton.
Canada	St. Boniface	Nov. 8	Furn. motor and pump	J. B. Cote, City Clerk.
Porto Rico	Fajardo	Nov. 8	Constrn. water works	Manuel Guzman, Mayor.
New York	Buffalo	Nov. 9, 11 a.m.	Constrn. water system in hospital bldg.	F. G. Ward, Comr.
Texas	Waco	Nov. 11	Constrn. 6,000,000-gal. filtration plant	City Clerk.
Arkansas	Magnolia	Nov. 11	Furn. material for water works system	Water Works Comrs.
Illinois	Fairfield	Nov. 15	Constrn. water works	Mayor Harlan.
Manitoba	Winnipeg	Nov. 15	Bldg. 17 pump houses, install. deep well turbine pump and motors, install. transformers, supplying material for power line constrn., constrn. 61,000 ft. steel pipe line	M. Peterson, Sec.
Ohio	Cleve. Heights	Nov. 19, noon	Constrn. 6-in. main	H. H. Canfield, Clerk.
British Col.	Kerrisdale	Dec. 2, 5 p.m.	Furn. 33 miles 4 to 12-in. steel pipe at Point Grey	B. A. Cunliffe, City Clk.
Canada	Point Grey	Dec. 2	Furn. 33 miles 4 to 12-in. steel pipe	B. J. Cunliffe, City Clerk.
Louisiana	New Orleans	Dec. 12, noon	Installing mechanical draft apparatus	F. S. Shields, Secy.
California	Tehachapi	Dec. 30	Constrn. water works, cost \$16,000	F. A. Lathrop, Engr. Los Angeles.

LIGHTING AND POWER

Ohio	New Bremen	Nov. 2	Furn. 125 h.p. boiler	E. R. Haines, City Clerk.
Dist. of Col.	Washington	Nov. 2	Furn. power plant appurtenances for Navy Yard, Portsmouth, N. H.	Navy Dept.
Tennessee	Chattanooga	Nov. 2	Constrn. ornamental street lighting	Retail Merchants' Assn.
Mississippi	Brooksville	Nov. 5	Furn. 60 h.p. solar engine, compressor and plunger pump	T. S. Gay, Town Clerk.
Mississippi	Jackson	Nov. 6	Installing motor-driven deep well pump at hospital	Ben Price, Arch. Birmingham, Ala.
Ohio	Columbus	Nov. 6	Furn. 2 600 and 2 400 k.v.a. transformers	S. A. Kinnear, Dir. Pub. Ser.
Missouri	Fredericktown	Nov. 6	Constrn. electric light plant	W. A. Engel, Mayor.
New York	New York	Nov. 8, 10:30 a.m.	Furn. electric pumps and hospital	E. J. Lederle, Comr. Health.
Pennsylvania	Philadelphia	Nov. 14, noon	Furn. electric lighting for year 1913	G. D. Porter, Dir. Pub. Ser.
Illinois	Fairfield	Nov. 15	Constrn. addition to lighting plant	Mayor Harlan.
Michigan	Sioux Ste. Marie	Nov. 19, noon	Constrn. arc lighting system	M. P. Patrick, Lt. Col. Engrs., Detroit.
Nevada	Fallon	Nov. 21	Furn. gates, valves and operating mach...	U. S. Reclamation Service.

FIRE EQUIPMENT

New York	Albany	Nov. 4	Constrn. fire engine house	I. Wachsman, Sec. Bd. Contract.
Montana	Billings	Nov. 5, 8 p.m.	Furn. comb. chemical & hose automobile	L. E. Torrence, City Clk.
New Jersey	Gloucester	Nov. 7, 8 p.m.	Furn. combination chemical and hose wagon, also 500 ft. fire hose	Frank Butler, Chrmn. Com.
Canada	Yorkton, Sask.	Nov. 12, noon	Furn. comb. chem. and hose automobile	T. F. Acheson, Sec.
Manitoba	Winnipeg	Nov. 13	Furn. 2 motor hose wagons, 2 horse-drawn hose wagons, 5,000 ft. 2½-in., 600 ft. 3½-in. hose & 30 fire alarm boxes	Chrmn. Bd. of Control.
Michigan	Monroe	Nov. 18	Furn. motor-driven chem. hose wagon	Jacob Kull, Chief Fire Dept.
Pennsylvania	Johnstown	Nov. 21, 8 p.m.	Furn. combination chem. and hose wagon	Fire Com.
Iowa	Defiance	Jan. 1	Furn. hose cart and fire hose	Town Council.

BRIDGES

Virginia	Rustburg	Nov. 4	Constrn. 110 ft. bridge on concrete piers	R. A. Russell, Comr.
Mississippi	Vicksburg	Nov. 6, noon	Constrn. concrete arch bridge	J. D. Laughlin, Chancery Clk.
Missouri	Carthage	Nov. 7, 1:30 p.m.	Constrn. concrete bridge over river	Wm. Kohlman, Co. Engr.
Arkansas	Little Rock	Nov. 8, 3 p.m.	Constrn. concrete & steel viaduct	Bd. of Pub. Affairs.
Nebraska	Theford	Nov. 12 (re-ad.)	Constrn. reinforced concrete bridge	County Comrs.
Ohio	Akron	Nov. 13, 11 a.m.	Constrn. Case Ave. bridge	C. L. Bower, Clk. Co. Comrs.
Indiana	Laporte	Nov. 14	Constrn. approach to bridge	F. A. Hausheer, Co. Aud.
Ohio	Akron	Nov. 25, 10:30 a.m.	Constrn. superstructure	C. L. Bower, Co. Clerk.
Indiana	Terre Haute	Dec. 1	Constrn. two concrete bridges	R. E. Gibbons, Co. Survey.

MISCELLANEOUS

Illinois	Chicago	Nov. 2	Install. stairway in water tower	L. E. McGann, Comr. Pub. Wks.
Indiana	South Bend	Nov. 7	Furn. crane	Bd. of Pub. Works.
Missouri	Kansas City	Nov. 12	Collecting, removing, delivering and disposing of garbage for 10 years	A. C. Wright, Purch. Agt.

STREETS AND ROADS

Birmingham, Ala.—City will pave Phenian st., from Glen Iris ave. to Twelfth ave., embracing 2,400 sq. yds. paving.

Sylacauga, Ala.—Sylacauga is second town in Talladega county to have paved sidewalks. Petition has been signed by majority of property owners of Broad st. asking city commissioners to issue bonds for purpose of paving that street with cement sidewalks. Bonds are to run 10 years. Eighty per cent of residents of Broad st. have signed petition.

El Centro, Ariz.—City is considering construction of bitulithic pavements.

Los Angeles, Cal.—Numerous petitions have been received for improvement of various streets.

Pasadena, Cal.—Pasadena is to be upon one of main state highways to be constructed out of \$17,000,000 in bonds recently authorized by vote of people. State will build length of La Canada valley, coming in through Tejunga pass and running to Crown City through La Canada and La Crescenta. State boulevard will connect with present foothill boulevard at School street, La Canada, and state will then take over foothill boulevard clear through to San Bernardino.

Pomona, Cal.—Improvement of Holl ave. from Reservoir st. to county line is being considered.

Pomona, Cal.—Council will be asked to pave East Holt ave.

San Jose, Cal.—State Highway Commission will call for bids at once for construction of 72.5 miles of highway in eight counties of San Luis Obispo, Butte, Santa Clara, San Diego, Merced, San Mateo, Monterey and Mendocino. Two small sections of highway, making one mile more, will be added to contracts already let. These sections are in Stanislaus and San Mateo Counties. Estimated cost of work under ten new

layouts is \$575,000. Committee has determined to survey section of coast highway, route No. 2, in Santa Barbara County, from Seaca through Los Olivres via Santa Ynez mission Ysidario grade to Gaviota pass.

Santa Clara, Cal.—Plans are being considered for paving of streets.

South Pasadena, Cal.—Residents of Huntington drive have decided to institute proceedings to pave drive in near future. They will attend the council meeting in a body and ask that the drive be paved either by a bond issue of \$70,000 or by assessment. Question of paving Fair Oaks ave. will also come up.

Boulder, Col.—Emphatic indorsement has been given to Highway Commission bill as initiated and constitutional amendment providing for \$10,000,000 bond issue by County Commissioners' Association of Colorado, the Colorado Good Roads Association and Greater Colorado Highway Association.

Hartford, Conn.—Board has made plans for additional new paving in east side streets next season. Superintendent Bennett has submitted report showing that it would be possible to pave Front st., from State to Morgan st.; Morgan st., from Front to Market st., and Pleasant st., from Market to Windsor st., within half-mile limit set by charter. Board, after some discussion, in which it held that granite block pavement should be used on these streets, voted to adopt these streets on which to lay improved pavement next year.

Naugatuck, Conn.—At special meeting of Boro Board it was voted to build asphalt pavement on N. Water st., from Maple st. to Cedar st.

Waterbury, Conn.—Division Engineer Hurlburt of State Highway Commissioner McDonald's staff, is busy on Waterbury-Thomaston highway at Reynolds Bridge.

Windsor Locks, Conn.—Plans and specifications for rebuilding and regrading of Main st. has been received by selectmen from State Highway Commissioner's office, and bids are advertised.

De Land, Fla.—City council has ordered ordinance committee to report ordinance requiring putting down of cement sidewalks on both sides of boulevard, north from university to city limits, on Florida ave. practically over its entire length; on East New York ave. to near city limits and on Michigan ave. from boulevard to Clara ave. It was also ordered that city engineer prepare plans for grading and shelling of Michigan ave. from boulevard to Clara ave.

Fort Lauderdale, Fla.—Special session of city council has been called to consider bids on \$40,000 special improvement bonds to be issued by town of Fort Lauderdale for purpose of installing water works and sewerage system, and to open bids for completion of work.

Jacksonville, Fla.—It has been resolved that Board of County Commissioners complete trunk lines leading from city to Duval County boundary as soon as possible.

Plant City, Fla.—City will vote Nov. 2 on \$25,000 bond issue for street paving.

Sanford, Fla.—Council has ordered negotiations to be entered into with brick manufacturers over country with view of paving Ninth st. west from Park ave. to new passenger station, distance of 8 blocks.

Starke, Fla.—Bradford County citizens are urging bond issue for road improvements.

St. Augustine, Fla.—Plans have been made for repairing of asphalt streets. Work will consist of about 5,306 sq. ft.

Macon, Ga.—City Council will probably have to give out new contract for paving of Forsyth st. This was made known when Mayor Moore stated that a representative of John H. Lowe Contracting Co., of Atlanta, which was awarded contract, had inferred to him that they would not make maintenance bond required of successful bidder for paving.

Rome, Ga.—City Council has passed resolution providing for pavement of North Broad from Ross st. to Callahan ave. Estimates will be made at once and contract let for work as soon as possible.

Janesville, Ill.—Third largest amount of State highway money to any county has been apportioned to Rock County by State Highway Commissioner's staff. Of \$378,000 which was allotted Rock County will receive \$11,154.69. Milwaukee will get largest amount, \$74,455.81, and Dane second, with \$18,494.88.

Dodge County receives fourth largest sum, or \$10,758.26.

Clinton, Ill.—Final report of City Engineer on paving of Fifth ave. between Second and Fifth sts. has been submitted, showing total cost of the improvement to be \$29,196.02.

Leavenworth, Kan.—Plans and estimates for improving South Esplanade have been submitted by City Engineer. They call for sixty foot roadway with fifteen parkings on either side. Plans also call for a retaining wall at north end at estimated cost of \$1,500.

Leavenworth, Kan.—Paving of Congress st. from Second to Third ave. is being considered.

Louisville, Ky.—Board of Public Works has opened bids for reconstruction of eight blocks of st. work to cost approximately \$41,200. Bids range from \$1.93 to \$2 a square yard for asphalt paving. There were three bidders: The Bickel Asphalt Paving Company, the Louisville Asphalt Company and the American Standard Asphalt Paving Company. Streets to be reconstructed under new specifications are: Washington st., from First to Second sts.; Chestnut st., from Twenty-first to Twenty-fourth street, and Walnut st., from Eighteenth to Twenty-second st., eight blocks in all.

Pikeville, Ky.—City will construct 25,000 sq. yds. street paving.

Napoleonville, La.—Police Jury will look into expense of building permanent roads. Jury expects to put out bonds at 5 per cent for forty years, amounting to \$10,000, which will be used in building forty-six miles of roads along Bayou Lafourche on both sides from upper and lower ends of parish.

Baltimore, Md.—The circle, which will form ornamental entrance to grounds of Johns Hopkins University and Episcopal Cathedral, at Homewood, and opening of Thirty-seventh st., from Charles st. to University Parkway, will cost city \$30,711.89.

Oakland, Md.—Garrett County Commissioners are considering building road from Bond, Md., to Bloomington, about 12 miles.

Lowell, Mass.—Members of Municipal Council is considering proposed extension of Chambers st., from Newhall to Andrews st.

Springfield, Mass.—Favorable report has been received from Board of Public Works on laying out of Maple court as public way.

Hancock, Mich.—Mayor Dodge and Council have agreed to open up Front st.

Kalamazoo, Mich.—County road Commissioners have requested Board of Supervisors for appropriation of \$69,400 to carry on the work of building good roads in Kalamazoo County during the year 1913. The appropriation asked for, if granted, will be used to construct following roads in different townships in County: Alamo—\$3,000 for completion of Center road and work on Williams road continuing north one and three-quarter miles to the northwest corner of section 10. Cooper township—\$1,800 for work on Cooper road north to Cooper Center and then northwest to the corner of section 21. Also \$1,600 for completion of work on the River road through section 14. Richland—\$4,000. Work on the Gull road commencing at section 22 northeast to section 23. Also work on the North road through to the south end of the township gravel road. Ross—\$4,800. Work on the Galesburg-Augusta road from section 33 to the corporation line of Augusta, a distance of about one-tenth of a mile. Also work on the Ross Center road and the Gull road to the Richland township line. Charlestown—\$3,400. Work on the Galesburg-Augusta road about 1 4-10 miles to the north line of section 4. Comstock—\$3,800. Territorial road about three-quarters of a mile to Galesburg, the balance to apply on the Gull road about one and five-eighths miles to the north line of section 5. Kalamazoo township—\$13,400. Completion of the Cooper road work on West Main st. road, a distance of one mile; work on the Territorial road commencing at city limits, thence northeast a distance of about nine-tenths of a mile. North West st. road from city limits north one mile. Oshtemo—\$3,700. Territorial road work and completion of the work on the Angling road to the line of section 20. Texas Township—\$3,000. Work on the Pine Island road from section 22 two miles west to section 20. Portage—\$3,800. Completion of Kalamazoo road, completion of Portage street road and balance to apply on Texas road commencing at section 7 and then east for one mile. Pavilion—\$3,200. Completion of the

Moore road, work on the Kalamazoo-Brady road, a distance of about one and three-quarter miles to Portage Township. Climax—\$5,000. Town line road completion and finishing work on Eldred road, a distance of about one and three-quarter miles to section 22. Wakeshma—\$3,800. Work on Center road two miles between sections 17 and 20 and 18 and 19. Brady—\$3,500. Completion of State road and two miles of work on Center road between sections 24 and 13 and 23 and 14. Schoolcraft—\$4,200. Completion of work on Center road and work on Kalamazoo road, a distance of one mile. Prairie Ronde—\$3,400. Completion of work on Shafer road and balance to apply on the Center road work. The Commissioners told the Board that they would require 12 wheelers for next year's work at an estimated cost of \$460; one ten-ton roller at \$2,000; one large stone crusher, \$2,000; camp outfit and tools, \$1,000, and one hauling outfit, \$4,000. Total, \$9,460.

Owosso, Mich.—Supervisors have appropriated \$30,000 to be used in improving Shiawassee County roads.

St. Joseph, Mich.—The \$500,000 good roads plan won sweeping victory on Board of Supervisors when Nixon resolution providing that proposition be submitted to voters of county at April election was adopted by vote of 18 to 12.

Crisholm, Minn.—Village Engineer will prepare plans and estimate of cost for boulevarding shores of Longyear Lake.

St. Paul, Minn.—Council has passed orders for paving in spring to cost \$300,000, and contemplates work for entire season to cost about \$1,000,000.

Pearlerville, Miss.—Pearl River County is contemplating voting on \$25,000 bond issue for road construction.

Nevada, Mo.—City will vote on \$20,000 bond issue to construct section of North-and-South road.

Hastings, Neb.—Ordinances providing for early opening of 50-foot st. between Second and Seventh sts. and parallel with and immediately east of Wabash ave. ditch have been passed by City Council.

Lincoln, Neb.—Ordinances have been passed for improvement of various streets.

Atlantic City, N. J.—Plans are being made for paving of smaller avenues.

Bayonne, N. J.—After hearing unanimous opinion of property owners along W. Fourteenth and W. Fifteenth sts. against awarding contracts for paving of those two streets to Uvalde Asphalt Co. at \$1.85 per sq. yd., Bayonne City Council has voted to reject bids and advertise for new ones.

Long Branch, N. J.—Commissioner Wolley has offered resolution, which has been adopted, advertising for bids for asphaltating each side of new Takanassee bridge at cost not to exceed \$8,000. \$5,000 of this is contributed by State Road Commission and Freeholders have agreed to add \$3,000.

New Brunswick, N. J.—Board of Freeholders has adopted resolution recommending to State Road Commissioner that State take over Ryder's lane road, from Spotswood to New Brunswick, as part of the State highway system. Ryder's lane road if improved would provide shortest route between this city and Freehold, county seat of Monmouth. With completion of new Spotswood-Englishtown road Ryder's lane route would shorten road between two capitals by several miles.

Newark, N. J.—Resolutions have been adopted for paving of various streets.

Perth Amboy, N. J.—Resolution has been passed authorizing receipt of bids on November 4 for grading Johnstone st., Hanson ave., Hommann ave., Lee st. and Laurie st.

Roselle Park, N. J.—Bids will be advertised for paving and curbing of Chestnut st.

Trenton, N. J.—Bids for repairing of Turnpike rd., construction of which was recently investigated by Hudson County Grand Jury, have been received by State Road Commissioner Stevens. Lowest bidder was William Van Kuren Co. of Jersey City, \$6,400. Other bidders were Bamberger & Chapman, East Orange, and Cosey & Manning, of Jersey City.

Belmont, N. Y.—Citizens have voted to pave Schuyler st. and construct macadam road in Washington st.

Buffalo, N. Y.—Common Council has authorized paving of Ulmer ave. with brick and repaving of Peacock st. with asphalt.

Cedarhurst, N. Y.—Street improvement bonds amounting to \$30,000 have been sold.

Port Chester, N. Y.—Port Chester Savings Bank has purchased \$13,000 paving bonds for Glen ave. improvement, at meeting of Board of Trustees of the Village.

Rochester, N. Y.—Ordinances have been passed providing for extension of Alvin pl. to Harvard st., Daus alley pavement, Malvern pl. opening and Woodlawn st. walks and sewer.

Schenectady, N. Y.—Board has authorized Secretary Fred Johnson to advertise for bids for widening and paving of Smith st., between Clinton st. and South Center sts.

White Plains, N. Y.—Bids will be received on Nov. 4 for laying of sidewalk on northerly side of Rockledge ave., from Hillside ave. to Cottage pl.

White Plains, N. Y.—Communication has been received from State Highway Commission in which it was stated that road through White Plains would not be readvertised again, and it was suggested that some other kind of pavement be put down. It was finally decided to have brick laid from Scarsdale town line to Grand st., resurface Post rd. and South Broadway to point opposite fountain, and then brick pave Westchester ave. out to the Harrison town line. Estimated cost will be about \$67,000, and matter will be submitted at coming village election.

Charlotte, N. C.—By city, about 52,781 sq. yds. paving and Roman road pavement.

Roswell, N. M.—Question of paving sts. of Roswell is being agitated by business men.

Sidney, O.—City Council has passed resolutions providing for paving of Franklin and Ohio aves.

Springfield, O.—Street Committee has decided to recommend macadamization of Harrison st., from Ludlow ave. to Burnett road, Raffensperger ave., from Harrison to High st., and Buxton ave., between same thoroughfares.

Tiffin, O.—Plans have been prepared for paving River st., from Washington st. to Rocky Creek. C. J. Peters is City Engineer.

Toledo, O.—Council has adopted resolution authorizing City Solicitor to prepare legislation for condemnation of property which will make it possible to extend Summit st., from Perry st. bridge to intersection of Clayton st. and Broadway.

Toledo, O.—Paving bonds amounting to \$165,000 are said to have been sold.

Portland, Ore.—Paving bonds amounting to \$225,000 have been sold.

McAlester, Okla.—City Clerk writes that bids will shortly be received for 10-in. macadam pavement on C st., about 8,063 sq. yds., and 6,024 lin. ft. curb.

Youngstown, O.—Improvements to cost from \$15,000 to \$17,000 will be made in walks and drives in Wick Park. Work will not be started until spring. All walks will be cemented, and what money is left will be used in paving drives with asphaltum, an asphalt compound.

Youngstown, O.—West Federal street will be widened from Deibel's corner to Chestnut.

Chester, Pa.—Chester Councils have under consideration ordinance providing for borrowing of sufficient money to pay for paving of Third street, for which no provision was made in \$500,000 loan bill.

Harrisburg, Pa.—Ordinance has been passed authorizing opening and grading of Greer st., from Woodbine st. to Emerald st.

Chattanooga, Tenn.—Contracts of resurfacing of more than mile of government boulevard on Mission Ridge through famous battlefield will shortly be let by Chickamauga Park Commission.

Austin, Tex.—Bastrop County Road District No. 1 bonds, amounting to \$100,000 have been approved by Attorney General's Department.

Dallas, Tex.—City will pave extension of Browden st. between Wood and Jackson sts.

Dallas, Tex.—Bids have been opened by Board of Municipal Commissioners for paving of Colonial ave., from Forest to Lenway. Permanent materials are to be used and bids concerned use of bitulithic, creosoted wood blocks, vitrified brick, vitrified blocks and brick. Bids have been referred to Street Commissioner and to City Engineer. St. paving bids were as follows: Roach-Manigan Company, vitrified blocks, \$2.30 to \$2.40 a cu. yd.; Creosoted Wood Block Paving Company, vitrified blocks, \$2.36 to \$2.41; wooden blocks, \$2.98, to \$3.03; Texas Bitulithic Company, \$2.22 to \$2.50; Ockander Brothers, \$2.33 to \$2.42.

El Paso, Tex.—Resolution adopting report of City Engineer Herbert Nunn on paving of Arizona st., between Golden Hill and Hutton st. has been passed. Also resolution approving report of City Engineer relative to paving of Mesa ave., from River st. to Blacker st. Total cost of improvement was estimated at \$18,167.19.

El Paso, Tex.—In addition to paving of Tularosa st., it is proposed to pave Montana, Arizona and alleys in two blocks in the Campbell addition.

Lynchburg, Va.—In recommendations to be made to City Council by City Engineer Shaner will be request for more money to provide machinery with which to do necessary work on dirt streets as well as to take care of paved streets.

Norfolk, Va.—Plans are being made for improvements of various streets.

Portsmouth, Va.—Street Committee has been authorized to put granolithic pavement on east side of Washington st., from North st. to Hampton pl.

Seattle, Wash.—Plans are said to have been adopted by Board of Public Works for paving as follows: Ravenna blvd., \$50,000; Eleventh ave. West, \$35,000; N. Fifteenth st., \$150,000, and Twelfth ave. South, \$24,000.

Milwaukee, Wis.—Board of Supervisors has passed motion to improve large number of streets.

Milwaukee, Wis.—One of important matters to come up before Board of Supervisors was that of road improvement.

Superior, Wis.—New road in St. Louis County will be constructed with rocmac and Supervisors of this county will inspect material with view of using rocmac on roads here.

CONTRACTS AWARDED.

Anniston, Ala.—By County Commissioners, contract to Goodrich & Crinkley for construction of 2 miles of first class macadam road on Alexandria highway, north of city. This trip will connect up stretch of about 3 miles recently completed with street maintained by city, and will reach more than half way to Alexandria. Contract price is \$2,666.66 per mile.

Alexandria, Ala.—By Calhoun County Commissioners, to Goodrich & Crinkley, of Anniston, to construct 2 miles of macadam road on Alexandria road.

Rockford, Ala.—By Coosa County Board of Revenue, to W. A. Verner, to grade, drain and surface with top soil 6 miles of Kellyton and Rockford road.

Los Angeles, Cal.—By Board of Public Works for following improvements: Holliday st., from Bellevue to Ionia, awarded to Jameich & Yeco, at \$520 for sewer complete. Montana st., from Glendale to Lemoyne, and other streets awarded to Peter Grbovach at \$32,500 for sewer complete. Normandie ave., from Slauson to Santa Barbara and other streets, awarded to R. N. Nikcevich at \$29,250 for sewer complete. Townsend st., from Sunset to Willoughby, and other streets, awarded to H. H. Curtis at \$1.40 a lin. ft. for grading and graveling; 12 cts. a sq. ft. for macadam; 35 cts. a lin. ft. for cement curb; 15 cts. a sq. ft. for vitrified block gutter; 30 cts. a sq. ft. for sidewalk; \$170 for storm drains; 7 cts. a sq. ft. for regrading, regraveling and oiling; aggregate, \$16,202.52.

Oakland, Cal.—By City Council, for improving Monte Vista ave. by grading, curbing and paving with oil-macadam pavement, to the Oakland Paving Co., at following prices: Grading street, including sidewalk (filling), 65 cts. per cu. yd.; macadamizing (oil), 9 cts. per sq. ft.; curbing with redwood, 12 cts. per lin. ft.;

gutters (broken rock), 13 cts. per sq. ft.; wooden bridges, \$2.75 each; culvert, corrugated iron and concrete (8x12 ins.), \$2.75 per lin. ft. Frank R. Thompson, City Clerk.

San Jose, Cal.—State Highway Commission has awarded number of contracts for work on State highway, including three for sections of road in Santa Clara, as follows: Edenvale to Morgan Hill, 3 miles, oiled concrete pavement, Santa Clara route 2, section A, part 1, between Palo Alto and Stevens Creek Bridge, 6.4 miles; City Street Improvement Co., San Francisco, \$41,905.79. Santa Clara County, route 2, section A, part 2, between Stevens Creek Bridge and 900 ft. easterly from the Lawrence station, Saratoga road, 2.5 miles; A. Teschert & Sons, Sacramento, \$30,688.30. Other contracts let were as follows:

In San Luis Obispo County, from city of San Luis Obispo to Santa Margarita, 6.4 miles, oiled concrete pavement; Stanislaus County, through town of Ceres, .7 of a mile, oiled concrete pavement; Butte County, from Lindo Channel, 1½ miles north of Chico, to the northern boundary of county, 14.2 miles, oiled concrete pavement; San Diego County, Encinitas to Oceanside, 10.3 miles, oiled concrete pavement; Merced County, from the city of Merced to southern boundary line, 14.2 miles, oiled concrete pavement; San Mateo County, Redwood City to southern boundary, 3.3 miles, asphalt surface on a macadam base; at Burlingame, .2 of a mile, asphalt surface on concrete base; Monterey County, 3.2 miles north of King City Bridge to Greenfield, 7.4 miles, oiled concrete; Mendocino County, from Ringwood to Willets, 6.9 miles, grading only.

Kissimmee, Fla.—By City, to H. S. Jaudon Engineering Co., of Savannah, Ga., to construct 6 miles of sidewalks.

Coeur d'Alene, Ida.—To Warren Constrn. Co., contract for gravel bitulithic pavement at \$45,000.

Michigan City, Ind.—To W. B. Hutchinson, contract for Leusch road, in Center Township. Road will be 1½ miles in length.

Louisville, Ky.—Following contracts for asphalting of number of sts. will be awarded by Board of Public Works as follows: Chestnut st., between Twenty-first and Twenty-fourth sts., to the American Standard Asphalt Co., for \$18,563; Walnut st., between Eighteenth and Twenty-second sts., to the Louisville Asphalt Co., for \$20,568.70; Washington st., between First and Second sts., to the Bickel Asphalt Company, for \$3,337.60.

Jeanerette, La.—By city, to Southern Bitulithic Co., to pave streets.

Grand Haven, Mich.—By City Council contract for paving of 16 blocks to W. J. Sherman of Toledo, O. Paving will be constructed on Fourth and Fifth sts. and Howard st.

Gulfport, Miss.—By Harrison County Supervisors, to Hallis Taylor, at \$1,000, to construct 3 miles of road leading into Long Beach.

Magnolia, Miss.—By Pike County Supervisors, to Williams & Williams, of Osyka, Miss., to construct roads in first district for unexpired term of Allman & Burkhalter.

Meridian, Miss.—For st. paving as follows: Dolarway paving, Healy Constr. Co., \$1.14 per sq. yd.; gravel macadam, P. C. Powers & Son, \$1.05 per sq. yd.

Chillicothe, Mo.—By city, to Rackliffe-Gibson Construction Co., of St. Joseph, Mo., to pave E. Webster st. with Hasm.

Jefferson City, Mo.—By city, to Fred Wolff, of Jefferson City, at \$8,100, to grade, curb and pave Lafayette st. with vitrified brick. P. C. Harding is City Engineer.

Rye, N. Y.—Bids received for road improvements as follows:

	Bermudez	Trinidad	Standard	Asphalt.	Asphalt.	Tarvia X.	Extras.
Railroad Ave. Improvement:							
A. G. Milligan	\$8,050.00	\$7,935.00	\$7,360.00	\$7,187.50	\$4,884.60		
Daly & Merritt	6,037.50	6,037.50	5,635.00	5,635.00	4,316.00		
E. L. Erbeck.....	6,440.00	6,325.00	6,037.50	5,635.00	4,666.60		
Billington Contracting Co....	7,755.50	5,635.00	4,542.50	4,600.00	4,149.40		
F. E. Murray Contracting Co..	5,290.00	5,290.00	4,715.00	4,715.00	4,546.40		
Milton Road Improvement:							
A. G. Milligan	\$9,870.00	\$9,729.00	\$9,024.00	\$8,812.00	\$366.00		
Billington Contracting Co....	7,755.00	7,555.00	6,345.00	6,345.00	390.00		
E. L. Erbeck.....	8,107.50	7,896.00	7,614.00	7,050.00	450.00		
Daly & Merritt	7,402.50	7,402.50	6,909.00	6,909.00	390.00		
F. E. Murray Contracting Co....	6,274.50	6,274.50	5,569.50	5,569.50	330.00		
Purchase St. and New St. Imp't.							
Daly & Merritt.....	\$842.00	.....	.....	.....	.....	.....	.....
F. E. Murray Contracting Co....	1,132.20	.....	.....	.....	.....	.....	.....
Billington Contracting Co....	1,078.50	.....	.....	.....	.....	.....	.....

Concord, N. H.—Bids received for road improvements as follows:

	Bermudez	Trinidad	Standard	Asphalt.	Asphalt.	Tarvia X.	Extras.
Railroad Ave. Improvement:							
A. G. Milligan	\$8,050.00	\$7,935.00	\$7,360.00	\$7,187.50	\$4,884.60		
Daly & Merritt	6,037.50	6,037.50	5,635.00	5,635.00	4,316.00		
E. L. Erbeck.....	6,440.00	6,325.00	6,037.50	5,635.00	4,666.60		
Billington Contracting Co....	7,755.50	5,635.00	4,542.50	4,600.00	4,149.40		
F. E. Murray Contracting Co..	5,290.00	5,290.00	4,715.00	4,715.00	4,546.40		
Milton Road Improvement:							
A. G. Milligan	\$9,870.00	\$9,729.00	\$9,024.00	\$8,812.00	\$366.00		
Billington Contracting Co....	7,755.00	7,555.00	6,345.00	6,345.00	390.00		
E. L. Erbeck.....	8,107.50	7,896.00	7,614.00	7,050.00	450.00		
Daly & Merritt	7,402.50	7,402.50	6,909.00	6,909.00	390.00		
F. E. Murray Contracting Co....	6,274.50	6,274.50	5,569.50	5,569.50	330.00		
Purchase St. and New St. Imp't.							
Daly & Merritt.....	\$842.00	.....	.....	.....	.....	.....	.....
F. E. Murray Contracting Co....	1,132.20	.....	.....	.....	.....	.....	.....
Billington Contracting Co....	1,078.50	.....	.....	.....	.....	.....	.....

St. Louis, Mo.—Contracts for following improvements in sidewalk construction have been awarded by Board of Public Improvement as follows: Vandeventer ave., between Tower Grove and King's Highway, Frank A. Stiers, \$728.65; Dodge st., between Lowell and roadway, Davies Contr. Co., \$695.25; Alaska ave., between Neosho and Osceola, Davies Contr. Co., \$173.50; Alabama ave., between Fillmore and Bates, Davies Contr. Co., \$239.75; Canaan ave., between Broadway and Newby, Frank A. Stiers, \$871.70; north side Cote Brilliante, between King's Highway and Union ave., Frank A. Stiers, \$169.60; south side Cote Brilliante ave., between Acadamy and Union, Frank A. Stiers, \$123.60; Dakota st., between Nebraska and Minnesota, Davies Contr. Co., \$196.56; Elliot ave., between University and Hebert, Davies Contr. Co., \$140.68; Glasgow ave., between Sullivan and Parnell, Frank A. Stiers, \$740.30; Gravois ave., between Arsenal and Grand, Davies Contr. Co., \$182.43; Junia st., between Iowa and Gravois, Davies Contr. Co., \$131.65; east side Laurel st., between Ridge and Wells, Frank A. Stiers, \$655.40; McCausland ave., between Manchester and Clayton, Frank A. Stiers, \$345.28; New Ashland pl., between Labadie and Ashland, Davies Contr. Co., \$128.14; Natural Bridge ave., between Fair and Taylor, Davies Contr. Co., \$87.60; North Market st., between King's Highway and Union, Frank A. Stiers, \$727.56; Penrose st., between Grand and Prairie, Frank A. Stiers, \$386.50; Rolla pl., between Ashland and a point about 835 ft. south of Ashland, Davies Contr. Co., \$503.40; Spring ave., between St. Louis and Herbert, Davies Contr. Co., \$890.07; Twenty-first st., between Bremen and Penrose, Frank A. Stiers, \$754.40; Twelfth st., between Benton and Montgomery, Davies Contr. Co., \$230.93; Broadway, between Halls Ferry and a point about 218 ft. north of Hornsby, Harry F. Heman, \$245.60.

Belleville, N. J.—By Board of Freeholders for paving of Washington ave., from Mill to William st. with asphalt blocks to Hastings Pavement Company of New York at \$1.77 per sq. yd.

Belleville, N. J.—By Board of Freeholders for construction of concrete culverts on Washington ave. and on Chester ave., on Newark and Belleville line to Fred Spaty, Jr. of Nutley.

Long Branch, N. J.—By Board of Commissioners for resurfacing asphalt sts. to Standard Bitulithic Company at \$1.56 per. cu. yd.

Perth Amboy N. J.—To Jens L. Mathiasen and Peter C. Hansen, contract for grading Neville st. and several other street improvements. Estimates for grading Neville st., between Cornell and Groom sts., follow: Jens L. Mathiasen and Peter C. Hansen, 33 cts. a cu. yd. for excavation; Graham & McKeon, 34 cts. a cu. yd.; Liddle & Pfeiffer (bld with no check), 38 cts. a cu. yd.

New Rochelle, N. Y.—To Galgano Co., for paving Division st., at \$4,523.50.

Fayetteville, N. C.—By Cumberland County Commissioners, to J. R. Thomas & Son, of Greensboro, N. C., to rebuild portion of sand-clay Murchison road.

Southport, N. C.—By city, to Frank M. Abeel, of Wilmington, N. C., to lay about 3,000 sq. yds. concrete walks.

Columbus, O.—By State Highway Commission, contract as follows: To Pumphrey, Walker & Betz, of Delaware, the Ashland and New London rd., in Ashland County, at \$27,175; to Ft. Jennings Stone Co., of Ft. Jennings rd., in Putnam County, for \$10,395; to W. K. Hastings, of Castalia, Lake Shore rd., in Erie County, for \$7,099; to Graham & Kinnear, of Columbus, for the Springfield rd., in Montgomery County, for \$13,990; to A. C. Solomon, of Fremont, for State rd., in Erie County, for \$6,965; to Peter Christianson, of Canton, for the Canton Waynesburg rd., in Stark County, for \$22,930.

Dayton, O.—For paving of First, Wilkinson and Perry sts., to Andrews Asphalt Paving Co., at \$1,712.33.

Marion, O.—Bids for construction of stone walks on several streets have been opened, and contracts awarded by Service Director Edward Brandt. J. H. Kinsler was awarded contract for laying walk on Congress st. at his bid of \$350.60, and on Mt. Vernon ave., at a bid of \$151.40. Cleveland sandstone, 4 ft. in width, is to be used on these streets. O. J. Noble was awarded contract for laying sandstone sidewalk on Ucapher ave. at bid of \$1,265.40, Malone blue-stone to be used.

Sandusky, O.—By County Commissioners, contracts for improving roads as follows: Lake Shore rd., in Vermilion Township, to W. K. Hastings, of

Castalia, for \$7,009, and the State rd., in Florence Township, to A. C. Solomon, of Fremont, for \$6,965.

Toledo, O.—By Wood and Lucas County Commissioners, contract for paving of bridge across Maumee River at Waterville with 2-in. creosoted wood blocks, was awarded to Modern Constrn. Co., represented by Henry Hughes, of Fremont, on its low bid of \$6,284.

Checotah, Okla.—By City to Levy & Levy, Muskogee, Okla., at \$10,000, for socalithic mineral rubber pavement. W. W. Southard is City Engineer.

Oklawha, Okla.—By Commissioner of Public Works, contract for paving with bituminous pavement Dist. 2, to Levy & Levy, of Muskogee.

Hood River, Ore.—To E. O. Hall, contract for paving of Oak, Second and Third sts., at about \$20,000.

Pendleton, Ore.—To Warren Constrn. Co., on bid of about \$20,000 for paving of Jackson st.

Scottsdale, Pa.—To Pietro Bros., of Morgantown, W. Va., contract for paving at following bid: Walnut st., with Morgantown vitrified brick, at \$1.54 per sq. yd., total \$8,424, and Loucks ave., with Layton vitrified block, at \$1.44 per sq. yd., total \$7,914.

East Douglas, R. I.—To Charles Horne, of Millbury, for work on North st. road, for sum of \$3,000.

Charleston, S. C.—To U. S. Wood Preserving Co., contract for 12,000 sq. yds. wood block roadway. It bid for 3-in. wood block on 5-in. concrete base, \$2.87 per sq. yd., and on 4-in. base \$2.72. J. H. Dingle is City Engineer.

Sioux Falls, S. D.—Bids for grading of Cliff ave. from Grand ave. to Seventh st. north were as follows: Fanebust Bros., 33 1-2 cts. per cu. yd. for dirt; \$10.50 per cu. yd. for all stone. Joe Sampson, 30 cts. per cu. yd. for dirt; \$10.00 per cu. yd. for stone. Contract was awarded to Joe Sampson.

Bids for grading of Second ave. from 150 ft. south of Twenty-first st. south 219 ft. were as follows: Joe Sampson, 55 cts. per cu. yd. E. G. Ledyard, 56 cts. per cu. yd. Contract was awarded to E. G. Ledyard. Bids for grading of Sherman ave. from Labelle ave. to Greeley ave. were as follows: Joe Sampson, 35 cts. per cu. yd. Fanebust Bros., 33 cts. per cu. yd. Contract was awarded to Fanebust Bros.

Dallas, Tex.—For paving McKinney ave., to Roach-Manigan Co., for \$79,901. Bid of Texas Bitulithic Co., at \$37,776 for paving portion of Haskell st. is recommended for award, and for paving portion of Collett st. is awarded to Texas Bitulithic Co., at \$7,839.

Houston, Tex.—For paving 5 blocks in this city, to Creosoted Wood Block Pavng Co., of New Orleans, La., for about \$100,000.

Norfolk, Va.—For paving Church st. with granite block, total area, 13,000 sq. yds., to Edward Alcott at \$1.40 per sq. yd.

Wheeling, W. Va.—By County Commissioners, contract for paving River rd., from Warwood to Short Creek, a distance of 4.3 miles, to R. L. McNabb, of Wellsville, for about \$23,000.

Bellingham, Wash.—By Dept. of Pub. Wks. contract for improvement of Commercial st., between Holley and Chestnut sts., to J. H. Lich on bids of \$7,329.27 and \$10,098.40 for asphalt and brick, respectively.

Colfax, Wash.—By City Council contract to Warren Constr. Co. for paving of new district comprising several blocks on Cooper and Thorn sts., with Warrenite at \$7,116.

SEWERAGE

Hanford, Cal.—Citizens have voted to issue \$85,000 bonds for sewer system.

Huntington Beach, Cal.—City Engineer is said to be preparing plans for sanitary sewer system.

Los Gatos, Cal.—Citizens have voted to issue \$30,000 bonds for sewers.

San Diego, Cal.—Sewer Department is said to be completing specifications for sewer extensions. Estimated cost, \$92,500.

Denver, Col.—Board of Public Works is considering establishment of storm sewer district in section of city bounded by W. Thirty-fourth and W. Forty-fourth aves., Lowell blvd. and river, about 340 blocks, or 2 sq. miles; estimated cost, \$500,000.

Fort Lauderdale, Fla.—Special session of City Council has been called to consider bids on \$40,000 special improvement bonds to be issued by town for purpose of installing Sewerage and Waterworks Systems.

Burlington, Ia.—City Council has passed resolution to construct 8 in. vitrified pipe sewers from present sewer in Alley No. 8 to center of Alley No. 8 and Ash st.

Cedar Falls, Ia.—City Council has ordered in sewer and water connection on Walnut st., which means paving for next year on that st. Paving will no doubt extend from Second st. to Twelfth. The Third st. paving has been ordered and work started at once. This paving will extend from Washington st. to Tremont st. and material used to be best quality of asphalt.

Kingston, Ky.—Ordinance has been passed for construction of sewer in portion of Lucas ave.

Baltimore, Md.—In spite of opposition by State Board of Health, Baltimore County Commissioners have decided to purchase plant of Baltimore Suburban Sewerage Co., at Mount Washington. It is intention of Commissioners to develop plant to such capacity as to enable it to drain enormous area adjacent to Baltimore City, and including Towson, Lutherville, Ruxton, Sherwood, Pikesville, Mount Washington and other communities. Price agreed upon is \$600,000.

Springfield, Mass.—Extension of Highland terrace sewer, in East Springfield, has been recommended by Board of Public Works; estimated cost, \$41,000.

Duluth, Minn.—Resolutions have been passed by Council for sanitary sewer in several streets and alleys.

Atlantic City, N. J.—Commissioners have passed to second reading ordinance providing for issue of \$200,000 worth of city bonds for building of extension to lateral drain system. City Engineer Hackney has stated that while plans for lateral extensions have not yet been completed by T. Chalkley Hatton, special engineering expert, that cost is not likely to reach sum of \$200,000 and that Commissioners need not issue full amount of bond issue.

Audubon, N. J.—Citizens have voted to issue \$65,000 bonds for sewer system and sewerage disposal plant.

Perth Amboy, N. J.—Ordinance has been passed upon its first reading for placing 12-in. pipe sewer in Sherman st., between Market and Paterson sts.

Perth Amboy, N. J.—Resolution has been adopted to give notice of intention for placing 15-in. pipe sewer in Broadhead pl., between Sayre and New Brunswick aves.

Roselle Park, N. J.—Bids will be advertised for construction of lateral sewer in Webster ave.

Trenton, N. J.—C. A. Young, an engineer of Bordentown, has stated to the Commissioners that proposed sewerage disposal plant can be built for considerably under \$500,000, probably less than \$400,000.

Ventnor City, N. J.—City Council is said to have decided to employ sewer expert to prepare plans for complete sewer system.

Corning, N. Y.—Sewerage disposal plant which State Health Department has ordered State to build at estimated cost of \$60,000 will probably not be started this fall, no bids for its construction having as yet been advertised for.

Rochester, N. Y.—City Engineer Edwin A. Fisher is consulting with Engineer Emil Kuichling on plans for Imhof tanks to be built at sewerage disposal plant.

Cuyahoga Falls, O.—City Engineer Wyatt has announced himself to be in favor of installation of main trunk sewer for this village.

Kennmore, O.—Mass meeting for discussion of bond issue of \$70,000 for sewerage and garbage disposal plant, and \$100,000 for water plant, will be held.

Springfield, O.—Sewer Committee has agreed upon recommendation of sanitary sewers in Raffensperger and Buxton aves.

Tiffin, O.—City Council has ordered plans, specifications and estimates prepared for new sewer district; estimated cost, \$40,000.

Toledo, O.—Construction of sewer between Glendale ave. and filtration plant in Adams, along Maumee River, is being considered.

Altoona, Pa.—Mayor has approved of ordinance for construction of sewer in Twenty-third st.

Sioux Falls, S. D.—Resolution has been passed for construction of lateral sewers to connect with main trunk sewers. Walter C. Leyse, City Auditor.

Sioux Falls, S. D.—A resolution declaring it necessary that lateral sewer be constructed on Spring ave., from Tenth st. to Thirteenth st. has been adopted.

Canadian, Tex.—By vote of 20 to 1, bonds have been voted for sewerage and waterworks.

Dallas, Tex.—Secretary has been instructed to advertise for bids for laying six-inch sanitary sewer on Cole and Travis to Tuttle, and on Tuttle to Elizabeth.

Richmond, Va.—Ordinance has been passed authorizing construction of sewer in Meadow st., from Powhatan to Blair st., to cost \$1,047; sewer in Tilden st., to cost \$6,227; sewer in Hanover ave., to cost \$4,470, and sewer in Stuart ave., to cost \$4,500.

Vancouver, B. C.—City Engineer has completed plans and estimates for sewers on First, Thirteenth and other streets, to cost about \$30,000.

CONTRACTS AWARDED.

Hemet, Cal.—For construction of sewer system from plans of Frank A. Lathrop, Higgins Bldg., Los Angeles, to J. F. McMullen Co., Hibernian Bldg., Los Angeles, for \$32,499.

Oakland, Cal.—By City Council, for construction of sewers in various streets, to Philip Schuyler at following bid: Furnishing and laying 16-in. pipe, at \$1.80 per lin. ft.; furnishing and laying 14-in. pipe, at \$1.40 per lin. ft.; furnishing and laying 12-in. pipe, at \$1 per lin. ft.; furnishing and laying 8-in. pipe, at 65 cts. per lin. ft.; furnishing and laying 16-in. "Y" branches, at \$1.50 each extra; furnishing and laying 14-in. "Y" branches, at \$1.25 each extra; furnishing and laying 12-in. "Y" branches, at 85 cts. each extra; furnishing and laying 8-in. "Y" branches, at 50 cts. each extra; constructing brick manholes, with covers, complete, \$45 each; constructing lamp-holes, with covers, complete, \$10 each. G. R. Thompson, City Clerk.

Oakland, Cal.—By City Council, for sewerage portion of Laguna ave., to C. W. Cross, at following bid: Furnishing and laying 8-in. pipe, at \$1.10 per lin. ft.; furnishing and laying 8-in. Y branches, at 50 cts each extra; constructing brick manholes, with covers, complete, \$45 each; constructing lamp holes, with covers, complete, \$10 each.

San Bernardino, Cal.—For constructing I st. outfall sewer system, to Chas. McElvain, of San Bernardino, for \$11,050; 22, 18 and 16-in. vitrified pipe will be used.

Torrington, Conn.—By Boro Board contract for storm sewer on Highland ave., to John E. Driscoll. Sewer will be 892 ft. long, extending from point about thirty-five ft. west of Chestnut ave. to culvert at junction of High and Church sts. Estimate was \$3,836.45 for segment block construction and \$3,920.45 for concrete construction. Next lowest bidder for segment block construction was John McLoughlin & Co., Waterbury, whose estimate was \$4,585.50, and for concrete construction, A. Bernardino, Hartford, \$4,067.40. Other bidders were Frank Fabbri, Litchfield, Louis Longhi and Caesar A. Rossi, Torrington. Segment block construction will be used.

Fort Lauderdale, Fla.—By city, contract to Issac C. Michler, at \$28,855, to construct water works and sewer systems; water works will include tank and tower of 75,000 gallons capacity, machinery house and engine.

Baltimore, Md.—For storm water sewer contract No. 23, for Sewerage Commission, to William McCarthy & Co., at \$5,990.27.

Boston, Mass.—To James H. Ferguson for pipe sewers and drains in Cottage st., between Prescott st. and Neptune rd., East Boston, at \$7,843.

Bloomfield, N. J.—By Town Council for Elia st. Storm sewer to Joseph Cestone at \$861.50.

Circleville, O.—By Director of Public Service, for sewer extensions, to Koberger & Hoyle, of Marion, for \$5,600.

Urbania, O.—For construction of pipe sewers, to Boyd & Cook, of Dayton, as follows: Sewer pipe, per lin. ft., with cement joints, 6-in., 18 cts.; 8-in., 22 cts.; 10-in., 32 cts.; 12-in., 36 cts.; 15-in., 50 cts.; 18-in., 70 cts.; 20-in., 86 cts. Sewer pipe, per lin. ft., with asphaltic joints, 6-in., 25 cts.; 8-in., 32 cts.; 10-in., 47 cts.; 12-in., 51 cts.; 15-in., 70 cts.; 18-in., \$1; 20-in., \$1. Excavating and back-filling, per cu. yd., under 6 ft., 25 cts.; from 6 to 8 ft., 30 cts.; 8 to 10 ft., 45 cts.; 10 to 12 ft., 65 cts.; 12 to 14 ft., 90 cts.; 14 to 16 ft., \$1; 16 to 18 ft., \$1.50; 18 to 20 ft., \$2; 20 to 22 ft., \$2; 22 to 24 ft., \$2; 24 to 26 ft., \$3; 26 to 28 ft., \$3; 28 to 30 ft., \$4. Furnish and lay house connections, per lin. ft., cement, 4-in., 50 cts.; 6-in., 55 cts. Asphaltic joints, 4-in., 60 cts. Underdrains, trench and back-filling, per lin.

ft., under 6 ft., 15 cts.; 6 to 8 ft., 20 cts.; 8 to 10 ft., 20 cts.; 10 to 12 ft., 25 cts.; 12 to 14 ft., 25 cts.; 14 to 16 ft., 30 cts.; 16 to 18 ft., 30 cts. Furnish and lay underdrains, vitrified, per lin. ft., 6-in., 15 cts.; 8-in., 15 cts.; 10-in., 20 cts.; 12-in., 25 cts. C. i. pipe, per ton, \$30. Manholes, concrete, each \$28; brick, each \$35. Drop manholes, concrete, each \$32; brick, each \$40. Flush tanks, concrete, each \$50; brick, each \$60. Lamp-holes, each, \$10. Deep house connections, each \$2. Concrete, cu. yd., \$6. Rock excavation, cu. yd., \$3. Timber foundation, per M ft., \$25. Extra excavating, cu. yd., 50 cts. Sheet left in trench, per M ft., \$25. Total, \$78,663.

Totals of other bids: F. R. Stone, Lima, \$79,774; L. W. Schruth, Milwaukee, Wis., \$107,125; A. E. Sullivan & Son, Columbus, \$101,530; W. Sieverling, Springfield, \$102,289; Huston & Henderson, Logan, \$97,809; Weage & Tyler, Coldwater, \$93,385; W. McDowell, Cleveland, \$90,863; Barne Walt Contracting Co., Peoria, Ill., \$91,941; Ideal P. H. & Contracting Co., Milwaukee, Wis., \$101,281; Ryerson & Jones, Columbus, \$86,734; and J. Cooney, Springfield, \$101,405. Engineer, C. S. Pratt.

Portland, Ore.—For constructing sewer in Marquam Gulch District, to John Keating, at \$32,686.

Chester, Pa.—By Select Council, to E. H. Oliver, for Ninth st. sewer, Lloyd to Pusey sts., on the Norris st. extension, and on the Siles st. extension. The contracts were awarded for these sewers at the following prices: Ninth st. sewer, 18-in. terra cotta pipe, \$1.17 per ft.; Y branches, 80 cts. each; manholes, \$34 each; rock, per cu. yd., \$3.90. Extension to Norris st. sewer, 8-in. terra cotta pipe, 75 cts. per ft.; Y branches, 44 cts. each; manholes, \$34 each; rock, per cu. yd., \$3.90. Siles st. extension, 8-in. terra cotta pipe, 78 cts per ft.; Y branches, 44 cts. each; manholes, \$34 each; rock, per cu. yd., \$3.90. John Hanna & Sons secured work for two other streets at following bids: For the sewer to be constructed on Nineteenth st., Hyatt to Ridley ave., and thence to Ridley River, 8-in. terra cotta pipe, 72 cts. per ft.; Y branches, 45 cts. each; manholes, \$35 each; rock, per cu. yd., \$4. Twentieth st., Hyatt to Melrose ave., and thence to Nineteenth st., 8-in. terra cotta pipe, 72 cents per ft.; Y branches, 45 cts. each; manholes, \$35 each; rock, per cu. yd., \$4. Pritchard & Riley were the other bidders, but their figures were somewhat higher and they did not secure any of the work on this account.

Sioux Falls, S. D.—Bids for construction of lateral sanitary and storm water sewers in division No. 6 were as follows: A. L. Jones, sanitary sewers, \$14,000; storm water sewers, \$1,477.25. Dearborn & Jackson, sanitary sewers, \$15,750.50; storm water sewers, \$1,477.25. It was agreed that contract for constructing sanitary and storm water sewers in division No. 6 be awarded to A. L. Jones.

Sioux Falls, S. D.—Bids for construction of lateral sanitary and storm water sewers in district No. 6, have been received and were as follows: Tanner Bros., sanitary sewers, \$26,850.00; storm water sewers, \$5,490.00. Fraser & Danforth, sanitary sewers, \$27,500.00; storm water sewers, \$5,400.00. Black Hawk Construction Company, sanitary sewers, \$29,810.00; storm water sewers, \$6,200.00. Fanebust Bros., sanitary sewers, \$28,000.00; storm water sewers, \$5,250.00. Joe Sampson, sanitary sewers, \$23,566.92; storm water sewers, \$4,208.00. On motion Joe Sampson was awarded contract for construction of lateral sanitary and storm water sewers.

Knoxville, Tenn.—By city, contract for constructing Third Creek sanitary sewer has been awarded to O'Connor Constrn. Co., for \$70,000.

Salt Lake City, Utah.—Of five bids submitted to City Commission on Ninth South storm sewer and cleaning of Ninth South Canal, the T. J. Everill Co. had lowest figures, \$4,568, as against estimated cost by city engineer of \$5,490. Other bids were: Johnson & Nelson, \$6,285.50; Fidelity Construction Co., \$6,936; Filkerson Construction Co., \$10,246; Heuser & Sim, \$11,235.

WATER SUPPLY

Booneville, Ark.—City is contemplating construction of water works.

Hanford, Cal.—Citizens have voted to issue \$25,000 bonds for extension of water mains and addition to fire equipment.

Pasadena, Cal.—Resolution has been adopted stating plans for securing Owens River water which would be sat-

isfactory to Pasadena. This resolution provides alternative methods for securing 500 ins. of water laid down at northwest edge of Pasadena. It provides that people of Pasadena shall vote upon the matter.

Pasadena, Cal.—Word has been received that State Railroad Commission had granted application of City to purchase Pasadena Land and Water Company, Pasadena Lake Vineyard Land and Water Company and North Pasadena Land and Water Company.

Pasadena, Cal.—City Council adopted resolution awarding the Union National bank \$1,000,000 in water bonds.

San Francisco, Cal.—Board of Supervisors has adopted resolution calling on Board of Works to prepare plans for extensions of water mains in districts which are suffering for lack of water, or where development had been prevented because there is no water. Board also declared that these extensions would be part of the Tuolumne system.

Tehachapi, Cal.—Bids for \$16,480 worth of water bonds will be received by Town Clerk on Nov. 18.

Venice, Cal.—Ordinance calling for special election to vote \$10,000 to extend salt water fire mains through most of residence section of city will be considered.

Watts, Cal.—Construction of water works, with standpipe and direct pressure in case of emergency is proposed.

Gainesville, Fla.—City is having plans and specifications prepared for water works extension. J. E. Waugh is City Clerk.

Largo, Fla.—Bond issue of \$10,000 has been voted for water works and electric light plant.

Mulberry, Fla.—City is contemplating purchase of present water works, cost \$25,000.

Hamilton, Ill.—Citizens have voted to issue bonds for filter plant.

Princeton, Ind.—Princeton may vote soon on whether or not city shall purchase water works system from private ownership, contract with which expires next year. City Council is considering calling special election to get vote on proposition.

Richmond, Ind.—Approximately \$20,000 will be spent by Richmond City Water Works Co. in getting ready to use new water supply east of city on Ballenger, Clark and Yaryan properties, on which is situated Comer Springs.

Creston, Ia.—Question is being discussed of municipal ownership of water works plant.

Eppworth, Ia.—Town has voted to install water works system.

Estherville, Ia.—Council will be asked to submit to vote question on \$25,000 bonds for extending water system.

Jewell, Ia.—Town has voted bonds for extending water works. Cost \$5,000.

LeMars, Ia.—Council is considering installation of municipal water works.

Belle Plaine, Kan.—Citizens have voted to issue \$35,000 bonds for water works and electric light plant.

Donaldsonville, La.—Municipal Light & Water Commission is planning extensive improvements to water and lighting systems.

Vivian, La.—City has retained W. Grant, consulting engineer, to prepare plans and specifications for water works.

Auxvasse, Mo.—Election will shortly be held to vote on issuing bonds for construction of water works from plans of Richard H. Phillips, Security Bldg., St. Louis.

Baltimore, Md.—Board of Estimate will be asked to appropriate \$173,000 for improvements to water works.

Hancock, Md.—Construction of new water works system has been authorized.

Ely, Minn.—Council is considering installing hypochlorite plant at water plant.

Trenton, N. J.—State Water Supply Commission, after consultation with Governor Wilson, has decided to purchase Wharton tract of land in Atlantic, Burlington and Camden Counties, covering 110,000 acres, as watershed to supply all municipalities of South Jersey with water. Price is \$1,000,000. Capacity of watershed when completed will be about 400,000,000 gallons daily, and will supply about 5,000,000 persons.

Nyack, N. Y.—Vote will be taken Oct. 24 on \$25,000 bond issue for construction of additional reservoir.

Salisbury, N. C.—City is having surveys made from Salisbury to north fork of Yadkin River, to ascertain cost of securing water supply from river.

Kenmore, O.—Mass meeting for discussion of bond issue of \$100,000 for water plant, and \$70,000 for sewerage and garbage disposal plant will be held.

Foraker, Okla.—Election will shortly be held for construction of water works system.

Portland, Ore.—City water bonds amounting to \$250,000 have been sold by Ways and Means Committee of City Council at discount of \$15,550. Morris Bros., of this city, were successful bidders.

Union City, Pa.—City is in the market for filters for water system. Homer D. Johnson, Secretary.

Rapid City, S. D.—It has been decided by Board of Commissioners to wire to Washington Pipe & Foundry Co., of Tacoma, Wash., for specialist to take charge of the work of laying new pipe lines and installing storage reservoir on slope west of city.

Ballinger, Tex.—The irrigation plant which will probably be installed near here is being considered by citizens and business men of city as absolute necessity.

Canadian, Tex.—By vote of 20 to 1, Canadian has voted to issue bonds for waterworks and sewerage.

Appalachia, Va.—Town Council has granted franchise to Clear Creek Water Co. to construct water works.

Norfolk, Va.—Board of Control has approved recommendation of Assistant City Engineer Taylor for installing water mains in Twenty-sixth, Twenty-seventh, Twenty-eighth and Leo sts. and Ruffin Way.

Portsmouth, Va.—Municipal water plant has been authorized.

Adamston, W. Va.—Construction of water works system has been authorized.

Wheeling, W. Va.—Board of Trade has taken favorable action on recommendation of Ways and Means Committee that board employ services of competent engineer to inspect system of filtration in use in number of surrounding towns, with view to reporting system best adapted to Wheeling.

Antigo, Wis.—A valuation of \$188,660 has been placed upon Antigo water works plant by Antigo Water Co. These figures have been given to city, which is agitating municipal ownership, and will vote on question of purchasing plant at special election on Nov. 5.

Milwaukee, Wis.—About 175 water meters will be installed by consumers.

Bowmanville, Ont., Can.—Water works system will be installed at estimated cost of \$111,000.

CONTRACT AWARDED.

College Park, Cal.—By College Park District, contract to Meisterheim Co. to install pumping plant at its septic tanks to pump water.

Ft. Lauderdale, Fla.—For constructing water works and sewer system, to Isaac C. Mischler, of Chattanooga, Tenn., for \$28,858.

Joliet, Ill.—For drilling artesian well at Illinois State Penitentiary, to W. H. Gray & Bro., of Chicago.

Crete, Ill.—To Charles H. Ridder & Co., contract for water main extensions for \$9,007.

South Bend, Ind.—Bids for new pumping station in Leeper Park, and balance of foundation to be built, have been received by Board of Public Works. The bid of C. E. Bressler, \$10,648 for foundation, was lowest for this improvement, while George C. Hoffman & Co. offered to build power house for \$46,555, submitting lowest bid for building proper. The Hoffman company offered to make both improvements for \$57,290.

Dunlap, Ill.—By city, contract for constructing pipe line, to Guy E. Smith, of Indiana, for \$5,114.

Lancaster, Ky.—By City Council, contracts for water works improvements as follows: Tanks, Chicago Bridge & Iron Co., \$5,110; filter, Greer Filter Co., Pittsburgh, Pa., for \$2,250, addition to dam, J. A. Moynahan, Richmond, Ky., \$3,000.

Westenport, Md.—To Brady Bros., of Frostburg, contract for constructing water works for about \$80,000.

Locke, N. Y.—By Board of Commissioners of the Water Dist., for construction of water works from plans of Morrison & Farrington, Inc., of Syracuse, to Martin & Stuart, of Kensington, Pa., as follows: 1,240 lin. ft. 4-in. c.i. pipe to trench and lay, 25 cts.; 6,500 lin. ft. 6-in., 30 cts.; 1,300 lin. ft. 6-in., to lay and calk, 30 cts.; 13 hydrants to set, each \$3; valves to set, \$2, \$2.50 and \$3 each; 15 tons 4-in. c.i. pipe, \$28; 125 tons 6, 8 and 10-in., \$26.30; 6,000 lbs. special castings, 3 cts.; 153 tons pipe to

haul, 50 cts.; 90 cu. yds. Portland cement concrete, \$3; 50 bolts and clamps, each \$1.25; 22 cu. yds. rock excavation, \$4; 3 expansion joints, each \$25; clearing reservoir, lump sum, \$200; total, \$8,614. Totals of other bids: P. R. Kiley, Syracuse, \$10,040; Gaffey & Byrne, Syracuse, \$8,975; Dillard Constr. Co., Syracuse, \$9,547; C. R. Simpson, New York City, \$9,080; John Siegrist, Utica, \$8,583.

Akron, O.—For improvement of water works as follows: Contract 6 awarded to Wilkes & Davidson, of Akron, as follows: 10,200 cu. yds. earth excavation, 65 cts.; 410 lin. ft. 4-in. c.i. pipe to lay, 15 cts.; 840 lin. ft. 6-in., 20 cts.; 60 lin. ft. 8-in., 25 cts.; 2,210 lin. ft. 16-in., 47 cts.; 4,100 lin. ft. 20-in., 55 cts.; 4,880 lin. ft. 24-in., 65 cts.; 15 cu. yds. concrete masonry, \$8; 20 cu. yds. brick masonry, \$10; 4,000 sq. yds. pavement to replace, \$1.30; total, \$18,860. Totals of other bids: M. H. O'Tool, \$19,515; Wilhelm & Smith, \$23,875; Thomas E. McShaffrey, \$22,219; McAlonan Bros., \$22,448. Contract 7 awarded to McAlonan Bros., as follows: 9,000 cu. yds. earth excavation, 75 cts.; 1,570 lin. ft. 18-in. vitrified pipe to lay, 65 cts.; 325 lin. ft. 20-in., 75 cts.; 360 lin. ft. 6-in. c.i. pipe to lay, 25 cts.; 84 lin. ft. 8-in., 50 cts.; 635 lin. ft. 20-in., 60 cts.; 48 lin. ft. 24-in., \$1; 6,325 lin. ft. 30-in., \$1.10; 100 lin. ft. 36-in., \$2; 20 cu. yds. concrete masonry, \$10; 20 cu. yds. brick masonry, \$10; 2 lamp holes, each \$5; total, \$16,142. Totals of other bids: Wilhelm & Smith, Cleveland, \$17,459; Thomas E. McShaffrey, \$17,701, and P. T. McCourt, \$18,614.

Dayton, O.—By Board of Public Service for 2 boilers for pumping station, as follows: Babcock & Wilcox, of Cincinnati, \$12,816 (awarded contract), and E. Keebler Co., of Williamsport, Pa., \$14,841.

Altoona, Pa.—By Board of Water Commissioners, for laying water mains to Lake Altoona and Sugar Run, to S. S. Johnson & Bro., of Harrisburg, at \$8,347.

Franklin, Pa.—Bids of Wagaman Co., of Dallastown, at \$12,000, was lowest submitted of remaking of Dull Hill reservoir with reinforced concrete.

Richmond, Va.—To Chewning & Payne for laying twenty-inch cast-iron water main along bed of James River to supply South Richmond, to cost \$32,250.

Niagara Falls, Ont.—In accordance with recommendation by Engineer Kennedy, of Montreal, Board of Water Commissioners has awarded contract for construction and installation of new centrifugal force pump, for which \$7,500 was voted by ratepayers, to Canadian Foundry Co., of Toronto.

LIGHTING AND POWER

Los Angeles, Cal.—Ornamental lighting of Eighth st., between Main and Figueroa, is provided in ordinance adopted by Council.

Largo, Fla.—Bond issue of \$10,000 has been voted for electric light and water works plant.

Grantville, Ga.—City Council of Grantville, has decided that Grantville shall have electric lights, and it has let to J. B. McCrary Company, of Atlanta, contract for erecting poles in city.

Macon, Ga.—On recommendation of Committee on Lights and Electricity City Council has decided on installation of new arcs on number of Macon's streets.

South Bend, Ind.—Board of Works has adopted resolutions to receive bids for new lighting contract as soon as old one runs out with Indiana & Michigan Co. Bids will be received until Nov. 8.

Chelsea, Ia.—City will vote Nov. 12 on granting franchise for electric light and power to William G. Dowd and others.

Donaldsonville, La.—Municipal Light & Water Commission is planning extensive improvements to lighting and water systems.

Alton, Mo.—Meeting will be held at Carlinville to organize all cities between Alton and Springfield to procure adoption of "Alton way" for proposed State road from St. Louis to Chicago. Alton way would take route through cities having brick-paved streets, and considerable saving in road building could be effected, it is said.

Baltimore, Md.—Movement has been started toward illumination of "great white way" for Broadway.

Centreville, Md.—The Centreville Town Commissioners have bought Centreville Light, Heat and Power Company from receiver for \$9,250, and will run a municipal plant.

Lowell, Mass.—Question of adopting new lighting contract with Lowell Elec-

tric Light Corporation is being considered.

Lynnfield, Mass.—Town has voted to raise \$600 to improve street lighting system.

New Bedford, Mass.—City is considering new lighting contract.

Clara City, Minn.—Town will vote Nov. 5 on bonds for proposed electric light plant.

Echo, Minn.—Town will vote on \$2,000 bonds for electric light plant.

Camden, N. J.—Plans for municipal lighting plant have been submitted by Engineers Runyon & Casey to Special Councilmanic Committee, and committee has decided to ask for bids for construction of power station.

Millville, N. J.—At special meeting of Millville Council ordinance was passed on first reading for construction of municipal electric lighting system.

Spotswood, N. J.—Spotswood is considering purchase of about 40 gas lamps at about \$28 each.

Roswell, N. M.—Roswell is going to have latest approved system of chandelier lighting. At meeting of City Council a committee appeared before City Fathers, asking that chandelier lighting system be installed on Main st., from First to Fifth.

Charlotte, N. Y.—Town Board of Charlotte has decided to hold special election on Nov. 11 on question of having city gas mains.

Dolgeville, N. Y.—Village Board has taken steps preliminary to changing village lighting system to large extent. Plan is to substitute 100 Watt Tungsten lamps for all of cluster lights now in use in village. There are 76 of clusters, for which \$23.50 each is paid. Tungsten lamps will give far better light and will cost only \$24 per year each. Utica Gas & Electric Co., which holds local contract, has offered to bear entire expense of \$7,000, that will be incurred in changing system.

Fulton, N. Y.—Installation of municipal lighting plant is being discussed.

Janesville, N. Y.—Effort is being made to install street lighting system.

Niagara Falls, N. Y.—The Businessmen's Association has taken first step toward municipal electric lighting plant, when, after hearing report of its special committee, made up of M. Arnsen, Max Elbe and Louis Bradley, on municipal plants in other cities, resolution was adopted to engage hydro-electric expert to come to Niagara Falls and make plans for municipal plant here and make estimate as to cost of such a plant.

Niagara Falls, N. Y.—Contract will shortly be let for placing poles and wires for ornamental illumination of Riverway; estimated cost \$1,900.

New Rockford, N. D.—Council has appointed committee to secure estimate of cost for installing and operating municipal electric light plant.

Sandusky, O.—Plans for submission of question of issuing \$150,000 of bonds for erection and maintenance of municipal lighting plant have been abandoned as result of proposition by Sandusky Gas & Electric Company to furnish arc lights at \$50 a year, per light. The present rate is \$60.

Rouseville, Pa.—Change in lighting system is being considered.

Parker, S. D.—City Council is enacting ordinance granting Charles H. Stanfield right to install and operate electric lighting system in Parker.

Chattanooga, Tenn.—Ordinance has been passed authorizing installation of "white way."

Chattanooga, Tenn.—Plans and specifications for great "white way" are completed, and contract for work will be let at an early date. One hundred and fourteen lights, located eighty-five feet apart, will be placed on both sides of Market st. from Sixth st. to Terminal station.

Wichita Falls, Tex.—Approximately \$10,000 will be spent upon "white way" lighting system in down town district. This sum will provide approximately one hundred cluster lights surmounting steel ornamental posts. The wiring will be under ground.

Aberdeen, Wash.—Cluster light system will be installed on K st. by Council.

CONTRACTS AWARDED.

Indianapolis, Ind.—Board of public Works has signed contracts with Pressure Lighting Co., of New York City, to

furnish necessary fixtures and to light and maintain gas street lights for five years, from Nov. 1, at \$18.75 a light a year, and to sell to city such additional posts as will be required in future, during contract, at \$9.50 each.

Haverhill, Mass.—City has closed 10-year contract with Haverhill Electric Co. for electric lighting. Contract provides for new magnetite lamps and Titanium arcs.

Jersey City, N. J.—Contracts for oil and gas lighting have been awarded by Street and Water Board, that for oil to Wellsbach Street Lighting Co., at \$29.40 a light, and gas lighting to Public Service Corporation, at \$26.40 a light.

FIRE EQUIPMENT

Pueblo, Col.—Installation of new fire alarm system is contemplated.

Bridgeport, Conn.—Council is considering proposed bond issue of \$85,000 for building of central fire station and installation of manual system of fire alarms.

Waterbury, Conn.—Two additional fire companies, necessitating purchase of two auto hook and ladder trucks, combination chemical and hose wagon for Willow st., and auto pump engine to replace antiquated engine at Burton st., will be recommended by Board of Public Safety in its estimates for 1913.

Fort Wayne, Ind.—Site has been purchased for erection of new fire station.

Indianapolis, Ind.—Ordinance authorizing bond issue of \$110,000, proceeds of which shall be used in erection of new fire headquarters building and municipal garage at southeast corner of Alabama and New York sts., will be submitted to City Council by Harry R. Wallace, City Controller.

Galena, Kan.—Motor fire truck will probably be purchased. Fire Chief Gerster.

Augusta, Me.—New fire station will be erected here at cost of \$20,000. It will be equipped with motor apparatus.

Billings, Mont.—At next regular meeting of City Council proposals for furnishing of automobile chemical and hose truck for use of fire department will be opened.

Hastings, Neb.—Purchase of motor fire apparatus is recommended.

Oaklyn, N. J.—Welcome Fire Company No. 1, of Oaklyn, has decided to build second story on its fire house, and 20-ft. addition to rear of building, at cost of \$3,000.

Trenton, N. J.—Action has been taken by City Commissioners at their regular meeting looking to extension of local fire department. Commissioner La Barre was empowered to advertise for bids for new engine house, No. 8, to be located on Stuyvesant and Edgemere aves.; for alteration of old Wilbur Hall into Truck House No. 4, and for transformation of storehouse back of First Precinct Police Court into garage and drill tower for firemen.

Rochester, N. Y.—Clerk F. X. Pifer has been authorized to advertise for proposals for furnishing 5,000 ft. of fire hose and for building new fire house at Genesee and Barton sts. Cost will be met from proceeds of special bond issue of \$125,000 for new fire department building and equipment made by Common Council last spring.

Cleveland, Ohio.—Fire Chief has asked for three new truck companies and two new engine houses.

East Youngstown, Ohio.—Council has decided to install fire alarm system throughout village, to include 5 of latest type district boxes, automatic whistle-blowing machine and indicator in sheet and tube plant, gong in central fire station and another in home of Fire Chief McGarry. Gamewell Fire Alarm Co., of Pittsburgh, will be awarded contract for furnishing material and installing system at cost approximated at \$2,110.

Youngstown, Ohio.—Erection of new fire station on Poland ave. has been planned.

Annnville, Pa.—Annville Fire Company has purchased site for erection of 3-story building to cost about \$10,000.

Johnstown, Pa.—Ordinance has been passed authorizing purchase of new automobile engine.

Goliad, Tex.—New chemical engine will be purchased.

Norfolk, Va.—City is considering purchase of modern chemical and hose wagon.

CONTRACT AWARDED.

Los Angeles, Cal.—By City Council, for 2,000 ft. of Chief Croker fire hose, to California Rubber Co.

Palatka, Fla.—New automobile chemical engine will be purchased from American La France Fire Engine Co., of Elmira, N. Y., at \$6,316.

Akron, O.—Bids have been received by Safer Dan P. Stein for 7 pieces of fire apparatus which will be added to fire department as soon as Council can pass appropriating ordinances. Total cost, estimated from lowest bids for apparatus, is \$50,312.06. Apparatus consists of tractor for No. 2 truck, combination chemical engine, hose and ladder wagon for No. 6 house, an 85-ft. aerial truck to take place of truck at No. 1 engine house, combination chemical engine and hose wagon for No. 1, and 3 combination pumping engines and hose wagons, similar to one recently installed at No. 3. These will be placed at No. 4, No. 5 and No. 8, while the pumping machine, now at No. 8, will be placed in reserve. Six companies bid on apparatus. They were: American La France Fire Engine Co., of Elmira, N. Y.; the Aherns Fox Fire Engine Co., of Cincinnati, the Lange Motor Truck Co., of Pittsburgh, the Nott Fire Engine Co., of Minneapolis, and the Webb Motor Fire Apparatus Co., of St. Louis. Latter company had lowest bid on 5 pieces of apparatus. Highest bidders on apparatus follow: Tractor, Nott Fire Engine Co., \$4,250; combination truck for No. 6, Webb Motor Apparatus Co., unequipped, \$5,072.50; equipped, \$5,400; 85-ft. aerial truck, Webb Co., equipped, \$10,509.75; unequipped, \$11,300; combination hose wagon for No. 1, Lange Motor Truck Co., \$4,152.50 unequipped; 3 combination pumping engines, unequipped, \$7,915.80; equipped, \$8,200.

Lebanon, Pa.—For erection of Perse engine house, to Contractor Harry Buffamoyer, of Lebanon, at \$8,816, and for erection of chemical building, to L. L. Kreeder & Co., of Lancaster, at \$7,391. List of bids is as follows: For Perse house, S. J. B. Spangler, \$9,498; H. Buffamoyer, \$8,806; A. H. Witmer, \$9,278.50; A. R. Kreider, Lancaster, \$9,550; L. L. Kreider & Co., Lancaster, \$9,627; J. H. Greiner, \$8,916.26; Shenk Bros., \$9,510. For the chemical house, S. J. B. Spangler, \$7,995; H. Buffamoyer, \$7,737; A. H. Witmer, \$8,523.56; A. R. Kreider & Co., Lancaster, \$7,350; L. L. Kreider & Co., Lancaster, \$7,591 including the heating; J. H. Creiner, \$7,927.29; Shenk Bros., \$8,199.

BRIDGES

Livingston, Ala.—Sumter County will expend \$12,500 to erect 8 bridges, including 4 steel spans 50 to 80 ft., and 4 reinforced concrete.

Glendale, Cal.—Construction of bridge over Verdugo Canyon at Opeeee Way is said to be considered.

Pineville, Ky.—Bell County will construct bridge across Clear Creek; B. A. Fuson, County Judge, will receive bids until Nov. 6.

Springfield, Mo.—Plans for 3 Frisco bridges which will cost approximately \$1,000,000 have been completed in office of Chief Engineer Byers. Bridges are to be constructed across Arkansas River, at Van Buren and Tulsa, Okla., and Red River at Arthur City, Tex. The order will be the greatest placed by the Frisco since the building of bridge at Memphis. In all, 6,000 tons of steel will be required for the new structures. Smaller bridges are to be constructed across the Verdigris River at Afton, Okla., and Frog Bayou at Mountainburg, Ark.

Girard, O.—County Commissioners are planning to erect new bridges over Squaw Creek.

York, Pa.—Construction of concrete bridge 80 ft. in width over Codorus Creek at West Market st., is recommended.

Fort Worth, Tex.—There are 4 bridges to be built with \$600,000 bridge fund. Principal amount will be expended on Main st. bridge, and balance on smaller structures. Seventh st. bridge, contract for which may be let at early date, will cost about \$100,000. The Main st., North Fort Worth, bridge will cost \$390,000.

Sherman, Tex.—Grayson County Commissioners' Court has ordered that on Nov. 5, citizens of county vote on proposition to levy tax of 15c on \$100 for purpose of building concrete bridges and culverts throughout county. Order for election was granted on petition of large number of citizens.

Southton, Tex.—County Road Engineer has been authorized to build bridge over Salado Creek, at town of Southton, by County Commissioners.

Work on bridge will be done by day gang and total cost, it is expected, will not exceed \$1,400.

Janesville, Wis.—Plans have been made for repairing of Milwaukee st. bridge.

CONTRACTS AWARDED.

Marysville, Cal.—By Co. Bd. of Spvs. Post of Los Angeles for erection of Parks Bar Bridge at \$36,000. Construction will be of concrete.

South Bend, Ind.—Firm of Van Shyhawk & Wagner, of Bremen, Ind., has been awarded contract for construction of flat top I-beam bridge on South Carroll st., to span Bowman Creek. Successful estimate was for \$1,875, which calls for concrete balustrade. Figures for gas pipe railing were \$1,825. Bid of Bremen concern was considerably lower than either of other two. The Elkhart Bridge & Iron Co. offered to do work for \$2,170 with iron railing, and \$2,250 with concrete balustrade. Estimates filed by C. E. Bressler, of this city, were: Gas pipe railing, \$3,065; concrete balustrade, \$3,140.

Louisville, Ky.—Contract for one concrete arch bridge for improvement of Louisville's parkway system has been awarded and plans for another approved by Board of Park Commissioners. The National Concrete Co., of Indianapolis, only bidder, was awarded contract for construction of a new bridge over Beargrass Creek, on Eastern Parkway, at \$3,150.

Shreveport, La.—In its bid, which was submitted to Shreveport City Council and Bossier Parish Police Jury, Modern Steel Construction Co., of Waukesha, Wis., proposed to erect superstructure of highway steel and reinforced concrete bridge across Red River, between Shreveport and Bossier City, for \$168,930, about \$3,000 less than estimated cost. Bid was retained to await recommendation from consulting engineers representing Shreveport and Bossier, who will be joint owners.

Mount Holly, N. J.—For fourth time Burlington County Board of Freeholders have considered bids for construction of bridges at Broad st. and Pearl st., Burlington, and for third time contracts have been awarded. Successful bidder this time was P. A. Hennessy, of Belvidere, who will do Broad st. job for \$10,870, and Pearl st. work for \$14,840, both of reinforced concrete. Pearl st. contract was awarded subject to government engineers' decision of whether draw instead of fixed bridge will be erected.

Woodbury, N. J.—By Gloucester Company Freeholders contract to erect steel bridge over Mantua creek at Paulsboro, also temporary structure to the Owego Bridge Co. for \$24,850.

Lisbon, O.—By County Commissioners, contracts for five additional bridges, which are to be built as soon as possible. Bridge 1329, in Wayne Township, was awarded to Contractor William McLane, of this city, at his bid of \$701.04, which was lowest submitted. Contract for bridge 724, in Hanover Township, was awarded to F. L. Cox, of Kensington, at \$649.14. Contractor Cox was also awarded abutments and steel structure for bridge 1420, in Franklin Township, contract price for abutments being \$990.60, and steel structure, \$607.55. U. V. Gaskill, of this place, will construct bridge 570, in Knox Township, for \$548, and B. F. Crist bridge 447, in Butler Township, for \$594.60.

Shamokin, Pa.—County Commissioners have awarded contract for repair of three bridges crossing the Shamokin Creek, between Shamokin and Sunbury, and another for erection of entirely new structure in Upper Augusta Township. C. C. Reed, of Elysbury, was successful bidder on repairs to be made to two structures at Reed's Station, and another at Shamrock. His contract price is \$1,895. York Bridge Co. bid \$1,374 to erect structure in Upper Augusta Township and was awarded contract. The bridge is to be built at a point about one-half a mile east of Pinegrove. Steel and concrete are to be used in its construction.

Fort Worth, Tex.—County Commissioners have opened bids for construction of Main st. and Seventh st. bridges. Nine bids were submitted, but 19 firms had asked for specifications and made deposits. Ten of these did not bid. Lowest bid was that of Hannan-Hickey Bros. Construction Co., of St. Louis, which offered to build Main st. viaduct for \$373,948.65, and Seventh st. bridge for \$106,435.70. Those who submitted bids were as follows: Tarrant Construction Co., W. Seventh st. bridge, \$106,772.17; Pheen Construction & En-

gineering Co., Chicago, Main st. bridge, \$425,869.60; John Wheeler Construction Co., Geneva, Ill., Main st. bridge, \$433,870.60; W. Seventh st. bridge, \$117,734.50; Hannan-Hickey Bros. Construction Co., St. Louis, Main st. bridge, \$373,948.65; W. Seventh st. bridge \$106,435.70; Martin-Carroll Co., Kansas City, Mo., Main st. bridge, \$395,222; W. Seventh st. bridge, \$127,365; Mississippi Valley Construction Co., St. Louis, W. Seventh st. bridge, \$115,895.16; Thomas Shehan, Richmond, Va., Main st. bridge, \$460,204.25; W. Seventh st. bridge, \$135,593.85; William P. Carmichael Co., St. Louis, Main st. bridge, \$444,958.36; W. Seventh st. bridge, \$121,496.19; Green & Sons, Chicago, Main st. bridge, \$492,819.15; W. Seventh st. bridge, \$140,144.85.

Waco, Tex.—To Austin Brothers of Dallas contracts for building four bridges in McLennan County. Cost of construction will amount to \$4,443, including one to be built over Childress, largest of the four structures.

Brigham City, Utah.—By Co. Crmrs. contracts for construction of twelve bridges to Omaha Structural Steel Works of Omaha, through A. A. Clark Company, of Salt Lake, local representatives. Contract price is \$29,000.

Stevenson, Wash.—By County Auditor, for constructing suspension bridge, to R. E. Mieth, Portland, Ore., for \$15,490.

MISCELLANEOUS

Little Rock, Ark.—Court has authorized erection of annex to county jail, which will cost about \$30,000, and will contain 100 cells.

Alhambra, Cal.—Bond issue of \$173,000 has been awarded to Lorraine, Marshall & Company of Los Angeles. Funds will be used for new library and city hall.

Long Beach, Cal.—Public Utilities Commission has decided unanimously to ask City Council to call election to permit voters to pass on \$1,200,000 bond issue. Improvements contemplated by bond issue are: Pleasure pier at Devil's Gate, to cost \$50,000; a pleasure pier extending from American to Pine ave., to cost \$400,000; acquisition of harbor

frontage to amount of \$300 000; \$350,000 for purchase of municipal lighting plant.

Los Angeles, Cal.—Chairman Langdon has asked City Engineer to furnish him estimate of cost of leveling Bunker Hill.

Washington, D. C.—Commissioners are to renew their efforts at coming session of Congress to obtain an appropriation for garbage reduction plant.

Pensacola, Fla.—Ordinance providing for construction of two municipal docks and asking that bonds to amount of \$400,000 be issued is being considered.

Augusta, Ga.—Finance Committee of City Council will open bids on \$500,000 of city's new bond issue Nov. 14, this being first installment of \$1,250,000 in bonds to be sold to raise money for flood protection, new hospitals and water works. The issue will be divided into \$100,000 for water works, \$150,000 for hospital, and \$250,000 for levee.

Louisville, Ky.—New police auto will be bought within near future, Board of Public Safety having been given permission to buy a chassis. The machine probably will be completed by a local firm, as it has been discovered that in this way a considerable sum of money can be saved.

Lynn, Mass.—Public comfort stations are asked for Lynn by Board of Health, and communication to that effect will be considered by Municipal Commissioners.

Mexico, Mo.—Citizens of Audrain County will vote at November election on \$25,000 bond issue to build new county jail.

Orange, N. J.—Orange Council has voted to secure supplementary plans and estimates for proposed joint municipal plant.

Niagara Falls, N. Y.—Park Commission is planning elaborate system of parks for city. It is intention of Commission to have expert landscape gardener lay out system of parks and playgrounds.

Rochester, N. Y.—Common Council has authorized purchase of eight additional voting machines, at about \$654 each.

Schenectady, N. Y.—Bond issue of \$800,000 is being considered for new parks.

Schenectady N. Y.—Bids will be received until 12 noon, Nov. 12, at County

Treasurer's office, for purchase of \$200,000 worth of bonds for erection of new county court house and jail.

Winston-Salem, N. C.—Hospital Commission of City of Winston has been created.

Dayton, O.—Council has passed bond issue for \$5,000 to provide sufficient funds for improvement of McCabe's Park, recently donated to city by Mr. W. O. McCabe.

Steubenville, O.—Contract for construction of Dam No. 10, short distance above Steubenville, has been awarded to National Contract Co., of Steubenville, O.

Toledo, O.—When extensions and improvements of Toledo's park system, as planned, get under way, as they will if voters ratify proposed bond issue of \$750,000, most important step will be that of parking Ottawa River Valley, from Ottawa Park to Central Grove Park, distance of about 1½ miles.

Toledo, O.—Bond issue of \$750,000 is proposed for improvement and extension of Toledo's park system.

Youngstown, O.—Bids will be received in two weeks for new municipal building. The specifications have been completed.

Sapulpa, Okla.—City will vote on \$100,000 Park Bonds, date of Nov. 1, 1912. Ira J. Anderson, City Clerk.

Philadelphia, Pa.—Erection of municipal lodging house will be considered.

Philadelphia, Pa.—Director Cooke has sent to Council's Finance Committee his comprehensive budget for public improvements and maintenance for Bureaus of Highways, Surveys and Water, in which he wants \$9,500,000 for public work that will likely be partially provided for out of loan moneys, and \$3,600,000 for street work. Total asked for is \$23,627,557, of which \$19,000,000 is for permanent work and upkeep. One of surprising items in estimate for 1913 for highways is request for \$1,800,000 for resurfacing and repaving all streets occupied by tracks of Rapid Transit Co., in addition to utilization of \$500,000 paid in annually to city by company for such repairs.

TOO LATE FOR CLASSIFICATION

BIDS ASKED FOR

STATE	CITY	REC'D UNTIL	NATURE OF WORK	ADDRESS INQUIRIES TO
STREETS AND ROADS				
Indiana.....	Laporte.....	Nov. 14, 10 a.m....	Constrn. 2,400 lin. ft. macadam	F. A. Hausheer, Auditor.
Ohio.....	Cincinnati.....	Nov. 22, noon.....	Constrn. culvert and macadamizing road.	S. Struble, Pres. Comrs.
SEWERAGE				
Minnesota.....	Duluth.....	Nov. 1, 10 a.m....	Constrn. sewers	O. G. Olsen, Pres. B. P. W.
Pennsylvania Reading.....		Nov. 4, noon.....	Constrn. 18-in. pipe sewer.....	F. P. Heine, Secy.
Ohio.....	Toledo.....	Nov. 12, noon.....	Constrn. a number of sewers.....	F. G. Stockton, Secy.
Ohio.....	Akron.....	Nov. 12, noon.....	Constrn. sewers in number of streets.....	R. M. Pillmore, Dir. Pub. Serv.
Wisconsin.....	La Crosse.....	Nov. 20.....	Constrn. pumping station, 5 sub-stations, disposal plant, two reservoirs.....	Bd. Pub. Wks.
WATER SUPPLY				
Iowa.....	Clinton.....	Nov. 4, 7.30 p.m....	Installing lead water connections.....	C. J. Reusche, City Clk.
Ohio.....	Cleveland.....	Nov. 7.....	Furn. two gear drives for engines.....	W. W. Kirby, Secy. D. P. S.
Ohio.....	Toledo.....	Nov. 12, noon.....	Constrn. pumping station, including 2 rotary pumps, 7,500 gals. per minute each with motors, etc.....	J. R. Cowell, Dir. Pub. Serv.
Wisconsin....	La Crosse.....	Nov. 18.....	Constrn. 6,600 ft. c.i. pipe, two Ventura meters.....	Bd. Pub. Wks.
Wisconsin....	La Crosse.....	Nov. 22.....	Furn. 8,000,000 gal. pumping engine, also 5 centrifugal pumps	Bd. Pub. Wks.
LIGHTING & POWER				
Wisconsin....	La Crosse.....	Nov. 22.....	Furn. two turbo generators & condensors, 5,100 ft. transmission line, boilers, switch boards, traveling crane, etc....	Bd. Pub. Wks.
MISCELLANEOUS				
Ohio.....	Toledo.....	Nov. 4, noon.....	Furn. automobile for the use of the city.....	J. R. Cowell, Dir. Pub. Serv.
Ohio.....	Youngstown.....	Nov. 16, noon.....	Constrn. retaining walls and steps	W. H. McMillin, Clk.
Washington.....	Spokane.....	Nov. 15.....	Moving and installing in new building jail fixtures	City Council.

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